EA Engineering, Science, and Technology, Inc., PBC

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30 November 2015

Ms. Katrina Higgins-Coltrain
Task Order Monitor
U.S. Environmental Protection Agency (EPA) Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

RE: Health and Safety Plan, Revision 00
Wilcox Oil Company Superfund Site
Remedial Investigation/Feasibility Study
Remedial Action Contract 2
Contract: EP-W-06-004
Task Order 0128-RICO-06GG

EA Engineering, Science, and Technology, Inc., PBC (EA) is submitting one electronic copy of the Health and Safety Plan, Revision 00, for the above-referenced Task Order.

One electronic copy is also being emailed to Oklahoma Department of Environmental Quality (ODEQ).

Please do not hesitate to contact me at (505) 224-9013 if you have any questions.

Sincerely,

Teresa McMillan
Project Manager

cc: Michael Pheeny, EPA Contract Officer (letter only)
Rena McClurg, EPA Project Officer (letter only)
Todd Downham, ODEQ Project Manager (e-mail copy)
Tim Startz, EA Program Manager (letter only)
File

TRANSMITTAL OF DOCUMENTS FOR ACCEPTANCE BY EPA		DATE: **30 November 2015**	TRANSMITTAL NO.: **0002**
TO: **Ms. Katrina Higgins-Coltrain** **U.S. Environmental Protection Agency Region 6**		FROM: **Teresa McMillan** **EA Engineering, Science, and Technology, Inc., PBC**	
SUBTASK NO.	DELIVERABLE	NO. OF COPIES	
1.2.2	Site Health and Safety Plan, Revision 00 for Wilcox Oil Company Superfund Site, Remedial Investigation/Feasibility Study, Bristow, Creek County, Oklahoma	Electronic Copy via e-mail to EPA and ODEQ	
ACCEPTANCE ACTION			
DOCUMENTS FOUND ACCEPTABLE (LIST BY SUBTASK NO.)		NAME/TITLE/SIGNATURE OF REVIEWER DATE	

Health and Safety Plan for
Remedial Investigation/Feasibility Study

Wilcox Oil Company Superfund Site
Bristow, Creek County, Oklahoma
EPA Identification No. OK0001010917

Remedial Action Contract 2 Full Service
Contract No.: EP-W-06-004
Task Order: 0128-RICO-06GG

Prepared for:

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

Prepared by:

EA Engineering, Science, and Technology, Inc., PBC
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November 2015
Revision: 00
EA Project No. 14342.128

Health and Safety Plan for
Remedial Investigation/Feasibility Study

Wilcox Oil Company Superfund Site
Bristow, Creek County, Oklahoma
EPA Identification No. OK0001010917

Remedial Action Contract 2 Full Service
Contract No.: EP-W-06-004
Task Order: 0128-RICO-06GG

30 November 2015

Tim Startz., Program Manager — Date
EA Engineering, Science, and Technology, Inc., PBC

30 November 2015

Teresa McMillan, Project Manager — Date
EA Engineering, Science, and Technology, Inc., PBC

30 November 2015

Brian Yost, Office Health and Safety Coordinator — Date
EA Engineering, Science, and Technology, Inc., PBC

Revision: 00
EA Project No. 14342.128

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LIST OF ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
CFR	Code of Federal Regulations
COPC	Chemical of potential concern
CPR	Cardiopulmonary resuscitation
CRZ	Contamination Reduction Zone
dBA	Decibel(s) on the A-weighted scale
EA	EA Engineering, Science, and Technology, Inc., PBC
EPA	U.S. Environmental Protection Agency
ERT	Environmental Response Team
EZ	Exclusion Zone
HSP	Health and Safety Plan
kV	Kilovolt(s)
mg/m^3	Milligram(s) per cubic meter
NIOSH	National Institute for Occupational Safety and Health
ODEQ	Oklahoma Department of Environmental Quality
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
ppm	Part(s) per million
PPE	Personal protective equipment
RI/FS	Remedial Investigation/Feasibility Study
RPM	Remedial Project Manager
TLV	Threshold Limit Value
TOM	Task Order Monitor
TWA	Time-Weighted Average
Site	Wilcox Oil Company Superfund Site
SZ	Support Zone
WAM	Work Assignment Manager

1. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA) has been authorized by the U.S Environmental Protection Agency (EPA), under Remedial Action Contract No. EP-W-06-004, Task Order 0128-RICO-06GG, to conduct a Remedial Investigation/Feasibility Study (RI/FS) at Wilcox Oil Company Superfund Site (site), Bristow, Creek County, Oklahoma.

1.1 PURPOSE

The purpose of this Health and Safety Plan (HSP) is to provide personnel with protection standards and mandatory safety practices, procedures, and contingencies to be followed while performing field activities at the site. This HSP as developed defines actions to be taken with respect to personal safety during work activities associated with the RI/FS field efforts.

EA considers the safety and health of its employees, clients, and visitors, and the prevention of work-related accidents and illness and property loss to be of the highest priority. Proactively implemented, a comprehensive and systematic health and safety program will result in more efficient and profitable operations by improving employee health and morale, and by reducing worker's compensation costs, lost time, fire and liability insurance premiums, and property damage. The objectives of EA's Safety and Health Program are to ensure:

1. Sound safety and health practices and conditions necessary for the protection of the health and welfare of employees, clients, and visitors

2. Compliance with federal and state safety and health regulations and standards

3. Effective safety and fire prevention practices necessary for protection of company-owned or operated property.

This HSP addresses the following regulations and guidance documents:

- Occupational Safety and Health Administration (OSHA) Standards for General Industry, 29 Code of Federal Regulations (CFR) 1910

- OSHA Standards for Construction Industry, 29 CFR 1926

- National Institute of Occupational Safety and Health, OSHA, EPA, and U.S. Coast Guard *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985.

One copy of this HSP will be maintained for use during the entire duration of field activities and made available for onsite use/employee review at all times.

The HSP Review Record in Appendix A must be signed by all personnel before they enter the site. Protocols established in this HSP are based on available site conditions/data and health and safety hazards known or anticipated to be present. This plan is intended solely for use during

proposed activities described in the corresponding site-specific Work Plan. Specifications herein are subject to review and revision based on actual conditions encountered in the field during site activities. Significant revisions to this plan must be approved by the Project Manager and the EA Health and Safety Coordinator.

1.2 BACKGROUND

A description of site history and the field activities covered by this HSP are included below.

1.2.1 Site History

The site is an abandoned and demolished oil refinery and associated tank farm located north of Bristow, Creek County, Oklahoma (Figure 1). The geographic coordinates of the site are approximately 35°50'31" North latitude and 96°23'02" West longitude. The site is the location of the former Wilcox Oil Company which operated as a crude oil refinery from the 1920s until the property was sold by Wilcox Oil Company on 1 November 1963. A modern skimming and cracking plant was constructed in 1929. The upgraded facility had an operating capacity of 4,000 barrels of crude oil per day. The main components of the system consisted of a skimming plant, cracking unit, and redistillation battery with a vapor recovery system and continuous treating equipment. The crude oil was brought directly from the field, eliminating storage and handling facilities, but resulting in crude with high bottom sediment and water. In 1937, the Wilcox Oil Company expanded operations by acquiring the former Lorraine Refinery facility west of the Stillwater Central Railroad tracks and the tank farm area to the east of the refinery (Appendix E, Figures 1 and 2). The two refineries span about 125 acres.

The site is currently inactive. A church and six residents are located within the former refinery boundaries. Three of the residences located on the eastern portion of the site are known to use water from domestic/private wells located on site. Intermittent streams drain the site and flow to Sand Creek, which follows the western and southwestern boundaries of the site. The site area is mostly rural with some residential, commercial, and industrial areas. Approximately 19 people live onsite and over 5,000 people live within 2 miles.

The site can be divided into three major former operational areas:

- Process Area – The former Wilcox Refinery process area is fenced and covers approximately 18 acres. Most of the equipment and storage tanks that remained onsite in 1963 were auctioned and salvaged for scrap iron by private land owners; any remaining structures are in ruins. Four aboveground storage tanks (12,500-gallon capacity each) remain standing, in addition to a number of discarded drums and pieces of scrap iron. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. A building in the northern part of the former refinery has been converted to a residence. An intermittent creek (West Tributary) flows southward across the eastern portion of the refinery area through a small pond in the southeast corner of the refinery area into Sand Creek.

- North Process Area/Tank Area/Loading Area – The former Lorraine Refinery area covers the southwestern portion of the site, south of Refinery Road and west of the railroad tracks. No refinery structures remain in either the processing area or refined product storage area. The First Assembly of God Church, playground, and one residence are located in this area. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. North of the church is the Lorraine Refinery tank area, whose boundaries are not well defined to the north. East of the Lorraine Refinery tank area across the railroad tracks is what appears to be a former loading area that has visible staining.

- Tank Farm Area – The former large crude oil storage area/tank farm covers approximately 80 acres and contains pits, ponds, and a number of circular berms that surround tank bottoms. All of the tanks have been cut down and removed; however, remnants of the tank storage contents remain and are visible. Many of the berms surrounding the pits, ponds, and former tanks have been cut or leveled. An intermittent creek (East Tributary) is located along the eastern portion of the tank farm and flows south to Sand Creek. A pumping or gas compressor station exists in the north-central portion of the site, and a Williams Company pipeline crosses from northwest to southeast across the middle of the site. There are four residences located on top of or directly next to former tank locations. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. Waste was also observed in several drainage channels that empty into Sand Creek.

The following chemicals of potential concern (COPCs) may be present at the site based on historical process information and previous site investigations:

- Coal tar pitch volatile compounds—such as anthracene, benzo(a)pyrene, chrysene, phenanthrene, and pyrene—in soil, sediment, and waste materials.

- Petroleum hydrocarbons—including gasoline-range organic and oil-range organic fractions—in soil, ground water, and waste materials. Volatile petroleum hydrocarbons may include benzene, toluene, ethyl benzene, and xylene

- Metals—such as barium, hexavalent chromium, copper, lead, and nickel—in soil, sediment, and waste materials.

The list of COPCs will be refined as the investigation progresses.

1.2.2 Scope of Work

The field activities covered by this HSP include:

1. Site reconnaissance
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development

4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells
13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

1.3 SAFETY, HEALTH, AND EMERGENCY RESPONSE PLAN ORGANIZATION

This HSP presents the approach to safety during execution of the task order activities conducted at the site. This section presents an introduction and outlines the report organization. Section 2 summarizes the project management team. Section 3 outlines the hazard communications and environmental monitoring during field operations. Section 4 presents the required employee training. Section 5 details personal protective equipment (PPE). Section 6 summarizes emergency response reactions to site contingencies. Section 7 outlines site controls and work zones.

Prior to arriving at the site, this HSP must be reviewed and an agreement to comply with the requirements must be signed by all personnel, including contractors, subcontractors, and visitors (Appendix A). Contractors and subcontractors are ultimately responsible for ensuring that their own personnel are adequately protected. In signing this agreement, the contractors and subcontractors acknowledge their responsibility for the implementation of the HSP requirements. All personnel onsite shall be informed of the site emergency response procedures and any potential health and safety hazards associated with site operations.

All personnel entering the site must participate in the daily safety meetings and sign the Daily Safety Meeting Form (Appendix C). In addition, a list of personnel onsite will be recorded in Daily Site Log (Appendix B) and maintained onsite.

2. PROJECT MANAGEMENT

This section identifies key personnel that will be involved in RI/FS activities at the site.

2.1 KEY PERSONNEL

Table 1 presents information on key project personnel:

TABLE 1 PROJECT PERSONNEL

Name	Position	Work Phone	Cell Phone
Katrina Higgins-Coltrain	EPA Task Order Monitor (TOM) EPA Remedial Project Manager (RPM)	(214) 665-8143	---
Todd Downham	Oklahoma Department of Environmental Quality (ODEQ) RPM	(405) 702-5136	---
Thomas Kady	EPA Environmental Response Team (ERT) Work Assignment Manager (WAM)	(732) 906-6172	---
Tim Startz	EA Program Manager	(972) 315-3922	(214) 616-7027
Pete Garger	EA Corporate Health and Safety Director	(410) 527-2425	(410) 790-6338
Teresa McMillan	EA Project Manager	(505) 224-9013	(505) 259-6779
Luis Vega	EA Alternate Project Manager	(972) 459-5040	(214) 280-9031
Brian Yost	EA Office Health and Safety Coordinator	(972) 315-3922	(214) 906-0253
To be determined	EA Site Manager	---	---
	EA Site Health and Safety Officer	---	---

2.2 RESPONSIBILITIES

Clear lines of authority will be established for enforcing compliance with the safety, health, and contingency procedures consistent with industry policies and procedures.

Designated EA personnel are responsible for implementation of the HSP during field activities. This includes field supervision; enforcing safe work practices and decontamination procedures (if needed); ensuring proper use of PPE; communicating site safety program modifications and requirements to site personnel; proper reporting of injuries, illnesses, and incidents to the appropriate internal and external organizations; and containing and controlling the loss of potentially hazardous materials to soil, air, and surface/ground water during all phases of investigation operations. In addition, EA personnel are responsible for implementing and directing emergency operations and coordinating with onsite and offsite emergency responders (if any).

In the event of an onsite injury, occupational illness, near miss, or environmental contamination incident, the following organizations/individuals will be notified as appropriate:

- Program Manager
- Office Health and Safety Coordinator
- Site Manager/Site Health and Safety Officer
- Corporate Health and Safety Director
- Project Manager.

2.2.1 Project Manager

The ***Project Manager*** has overall responsibility for site activities and will be the primary contact during field activities.

2.2.2 Health and Safety Coordinator

The ***Health and Safety Coordinator*** is responsible for administering the company health and safety program. The Health and Safety Coordinator will act in an advisory capacity to the Project Manager and personnel onsite for task order-specific health and safety issues. The Project Manager will establish a liaison between officers and representatives of the EPA and the Health and Safety Coordinator on matters relating to health and safety.

2.2.3 Site Health and Safety Officer

The ***Site Health and Safety Officer*** is responsible for coordination of onsite contingency operations, as well as the implementation of Site Health and Safety Program. The Site Health and Safety Officer will be onsite throughout the task order and will be responsible for daily compliance with site safety and health requirements.

For this task order, the Site Health and Safety Officer and the Site Manager will be one person. In the event of an emergency situation, the Site Manager/Site Health and Safety Officer will be responsible for initiating and coordinating emergency responses/contingency operations.

The Health and Safety Coordinator and Site Manager/Site Health and Safety Officer will have the authority to make on-the-spot corrections concerning safety, health, and environmental pollution infractions.

2.2.4 Site Manager

The ***Site Manager*** reports to the Project Manager and Health and Safety Coordinator. His/her responsibilities include, but are not limited to, providing technical support, evaluating onsite environmental monitoring results, coordinating site activities with subcontractors, initiating evacuation of the work site when needed, communicating with offsite emergency responders, and coordinating activities of onsite and offsite emergency responders.

2.2.5 Corporate Health and Safety Director

The ***Corporate Health and Safety Director*** reports to the senior management and is responsible for establishing and administering the company-wide health and safety program designed to ensure compliance with federal and state health and safety regulations and standards, and safe work practices.

2.2.6 Program Manager

The ***Program Manager*** reports directly to the senior management. He/she oversees management and coordination between client, staff, and subcontractors.

2.2.7 Employee Responsibilities

Employees are responsible for reading, understanding, and meeting the health and safety requirements contained in this HSP. A HSP Review Record sign-off sheet is provided in Appendix A. Employees are required to implement these procedures when conducting daily operations. This will also include receiving appropriate training and medical monitoring (if required) and utilization of EA provided health and safety equipment (to include all forms of PPE) to safely conduct site operations. Employees will review each task prior to commencement to consider the potential health and safety hazards, and the measures to be taken in the event of an emergency. Employees should know where material safety data sheets, first aid supplies, and emergency equipment are maintained. The Site Manager/Site Health and Safety Officer should be notified of potential health and safety hazards, near-miss conditions, or incidents present on the job site or unusual effects believed to be related to hazardous chemical exposures. Failure to follow established health and safety procedures could result in immediate dismissal from the site and, if repeated, a potential loss of employment.

2.2.8 Subcontractors

Responsibilities of subcontractor personnel include following the HSP and applicable health and safety rules, regulations, and procedures; using required controls, procedures, and safety devices, including PPE; notifying his/her supervisor of identified or suspected emergencies, safety, or health hazards; and complying with training and medical requirements (if required). Subcontractor personnel are responsible for reading, understanding, and meeting the health and safety requirements contained in this HSP in addition to their own HSP. The Site Health and Safety Plan Review Record in Appendix A must be signed by all subcontractors.

The subcontractors may elect to prepare a HSP Addendum, or they may adopt this HSP.

3. HAZARD EVALUATION AND CONTROL

Field activities to be performed by EA and subcontractors during the RI include the following tasks:

1. Site reconnaissance (e.g., site survey)
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development
4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells

13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

EA will oversee that Tasks 2, 3, and 5 listed above are completed by the appropriate non-team subcontractor. EA and team subcontractor staff will be responsible for completing the remaining tasks.

3.1 PHYSICAL AND BIOLOGICAL HAZARDS

Potential physical hazards and appropriate control measures are summarized in the following table for each of the above-listed tasks:

TABLE 2 PHYSICAL AND BIOLOGICAL HAZARD EVLUATION AND CONTROL

Hazard	Tasks	Control Measures
Biological	1 through 15	• Potential Hazard: Poison ivy, poison oak, snakes, insect bites, stings • Establish site-specific procedures for working around identified hazards • Insects – areas of heavy vegetation • Clear vegetation, when necessary, within the work zone and wear long-sleeve shirts, pants, and gloves. • Wear snake guards or chaps.
Cold Stress	1 through 15	• Provide warm break area and adequate breaks • Provide non-caffeinated beverages • Promote cold stress awareness.
Drilling	3 and 5	• Keep safe distance from the drill rig • Locate 'kill-switch' of the drill rig to stop the drill rig, in case of emergency • Cease activities during thunderstorm periods • Maintain line of sight to driller during drilling activities.
Fire and Explosion	2, 3, and 5	• Inform personnel of the locations of potential fire/explosion hazards • Identify subsurface utility lines, if possible • Establish site-specific procedures for working around flammables • Ensure that appropriate fire suppression equipment and systems are available and in good condition.
Heat Stress	1 through 15	• Promote heat stress awareness • Provide cool break areas and adequate breaks • Provide non-caffeinated beverages.
Heavy Equipment Operations	2, 3, and 5	• Ensure that the operators are properly trained and equipment has been properly inspected and maintained • Establish equipment routes, traffic patterns, and site-specific safety measures • Assign spotters and inform of proper hand signals and protocols • Wear reflective vests while working around heavy equipment • Keep safe distance from all the equipment • Lifting capacities and load limits of equipment will not be exceeded.
Impaling	1 through 15	• Sharp protruding objects (steel rebar, debris, etc.) – walk carefully • Wear proper PPE – hard hat, safety glass, steel-toed boots • Conduct work during daylight hours only.
Noise	2, 3, and 5	• Keep safe distance from all the equipment • Implement hearing protection measures

Hazard	Tasks	Control Measures
		• Establish noise level standards for all onsite equipment.
Power Tools	2, 3, 4, 5, and 7	• Comply with the requirements of 29 CFR 1926 Subpart P • Only allow trained personnel to use power tools • Wear proper PPE.
Site Debris	1 through 15	• Trip/Fall hazard – walk carefully • Wear proper PPE – hard hat, safety glass, steel-toed boots • Wear hard hat, safety glasses to protect against flying debris • Work only during daylight hours • Follow illumination requirements of 29 CFR 1926 Subpart P if sufficient illumination is absent • Contact local utility company, if required.
Vehicle and Pedestrian Traffic	1 through 15	• Barriers to separate work areas from vehicle and pedestrian traffic • Barriers demarcating work area even if site is inactive during work operations • Wear proper PPE – reflective vests or other high visibility material.
Utility Lines	2, 3 and 5	• Identify and locate existing utilities prior to work • Contact local utility company, if required • Keep safe distances from utility lines.
Water/Drowning Hazard	7, 9, and 14	• Have Emergency Flotation Device at worksite • Provide a ladder, rope, or other similar device for emergency egress from surface water features being sampled • Field work shall be conducted in pairs (two people all the time) • Wear proper PPE – personal flotation device, if appropriate

NOTES:
Field Activities:

1. Site reconnaissance (e. g., site survey)
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development
4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells
13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

The following section provides a brief description of physical hazards that may potentially be present during field activities. These physical hazards may include, but are not limited to:

- Fire/explosion
- Heat/cold stress
- Heavy equipment
- Noise
- Electrical

- Utilities
- Weather
- Biological
- Vehicular and pedestrian traffic
- Site debris
- Water/drowning Hazards.

The site will be visually inspected for the presence of general safety hazards (e.g., trip/slip hazards, unstable surfaces or steep grades, vehicle and pedestrian traffic, sharp objects) prior to beginning work. If hazards are identified, these hazards will be recorded and precautionary measures taken to prevent injury.

3.1.1 Fire/Explosion

The potential for fire and/or explosive conditions will exist. Workers must continuously monitor the work area for combustible or explosive gases when operations have the potential to generate sparks. Employees should always be alert for unexpected events, such as ignition of chemicals or sudden release of materials under pressure, and be prepared to act in these emergencies.

Smoking is not allowed at any time within the work area.

Field vehicles will be equipped with a fire extinguisher. Employees must be trained in the proper use of fire suppression equipment. However, professionals should handle large fires that cannot be controlled with a fire extinguisher. The proper authorities (local fire department) should be notified in these instances.

3.1.2 Heat Stress and Heat-Related Illness

Effects of heat stress and illness are possible during the performance of field activities at the site. Injury from heat exposure may occur to persons working outdoors during a period of high temperature conditions. This is a major concern when personnel are working in PPE clothing. The body's principal means of cooling is through the evaporation of sweat. When personnel are working in PPE, sweat is trapped inside the clothing and cannot evaporate, thus raising the body's core temperature and resulting in a heat-related illness. Monitoring will commence at temperatures of 70 °F and above when employees are wearing impervious full-body clothing.

Personnel should be familiar with the signs and symptoms of heat stress. These include:

- **Heat Cramps**—Painful contraction of voluntary muscles

- **Heat Exhaustion**—Dizziness, lightheadedness, slurred speech, rapid pulse, confusion, fainting, fatigue, copious perspiration, cool skin that is sometimes pale and clammy, and nausea

- **Heat Stroke**—Hot, dry, flushed skin; delirium; and coma (in some cases).

Resting frequently in a shaded area and consuming large quantities of fresh, potable water and electrolyte replenishing fluids (e.g., Gatorade) can prevent heat stress. If heat exhaustion symptoms are observed, the person will be required to rest in a shaded area and consume liquids. If symptoms are widespread or observed frequently, an appropriate work/rest regimen will be instituted. This may involve limiting the work period so that after 1 minute of rest, a person's heart rate does not exceed 110 beats per minute.

If the heart rate is higher than 110 beats per minute, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the heart rate is 110 beats per minute at the beginning of the next rest period, then the next cycle should be shortened by another 33 percent. Resting heart rate should be determined prior to starting onsite activities. A healthy individual's resting heart rate is usually 60–72 beats per minute. If symptoms of heat stroke are observed, the victim will be cooled immediately and transported to the nearest hospital. Workers should not hesitate to seek medical attention if heat stroke is suspected.

3.1.3 Effects of Cold Exposure

Cold stress can be caused by exposure to temperatures at or below freezing or to excessive wind at higher temperatures. When an individual's body temperature falls below 98.6°F, cold stress injuries may occur. The body's cells are composed primarily of water that can freeze when exposed to low temperatures, resulting in cell damage or death. Primary effects of cold exposure include frostnip, frostbite, and hypothermia:

- **Frostnip** commonly occurs as a result of surface tissue freezing at the tips of the ears, nose, cheeks, chin, fingertips, and toes. Symptoms of frostnip include the appearance of white shiny skin. If frostnip occurs, gradually warm the affected areas with a warm hand or warm breath. Do not rub.

- **Frostbite** occurs as the result of surface and subsurface tissues freezing. Symptoms include erythema (abnormal skin redness), blistering, throbbing pain, numbness, and swelling. If frostbite is suspected, move to a warm location and provide slow and steady re-warming.

- **Hypothermia** is the result of prolonged exposure to cold temperatures and body heat loss. Symptoms of hypothermia include body shivers, slow reaction time, mental confusion, glassy eyes, low body temperature, low pulse rate, and difficult respiration. Death can occur within 2 hours if not treated. If hypothermia is suspected, move to a warm location, remove wet and/or cold clothing, and provide re-warming as rapidly as possible. Provide both external heat (fire, electric blanket, body heat) and internal heat (hot liquids for conscious victims). Seek medical attention immediately.

In order to avoid potential cold stress, field personnel should take precautions against the cold and maintain body temperatures. This is most easily done by wearing the proper protective clothing, including insulated head and ear covering, gloves, insulated socks and/or boots, and insulated clothing in layers. If the potential exists for clothing to become wet, then the outer layer of clothing should be water repellent. Clothing that becomes wet with either water or

sweat should be replaced immediately. In addition, the work area can be protected by the placement of vehicles or tarps to reduce wind chill.

3.1.4 Heavy Equipment

The use of heavy equipment (e.g., drill rigs, front-end loader, excavator, dozer, dump trucks, vacuum trucks, concrete hauling trucks, generators, compressors, etc.) may pose safety hazards to site workers. Only trained, experienced personnel will conduct heavy equipment work. If possible, personnel must remain outside the turning radius of large, moving equipment. At a minimum, personnel must maintain visual contact with the equipment operator. No guards, safety appliances, or other devices may be removed or made ineffective unless repairs or maintenance are required, and then only after power has been shut off and locked out. Safety devices must be replaced once repair or maintenance is complete. Exhaust from equipment must be directed so that it does not endanger workers or obstruct the view of the operator. When not operational, equipment must be set and locked so that it cannot be activated, released, dropped, etc.

No employee is permitted under loads being handled by lifting equipment. Personnel are required to stand away from any vehicle being loaded or unloaded to avoid being struck by falling material. All personnel will wear high-visibility; reflective vests while onsite to aid in being seen by equipment operators.

3.1.5 Noise

Large equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, or distracted; can cause physical damage to the ear, pain, and temporary and/or permanent hearing loss; and can interfere with communication. If workers are subjected to noise exceeding an 8-hour time-weighted average sound level of 85 dBA (decibels on the A-weighted scale), hearing protection will be selected with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and to reduce noise levels to or below the permissible values. Therefore, during the field activities where workers are using heavy equipment, such as drill rigs, front-end loader, excavator, dozer, dump trucks, vacuum trucks, concrete hauling trucks, generators, compressors, etc., hearing protection must be utilized.

3.1.6 Electrical

Overhead power lines, electrical wiring, electrical equipment, and buried cables pose risks to workers of electric shock, burns, muscle twitches, heart fibrillation, and other physical injuries, as well as fire and explosion hazards. Workers will take appropriate protective measures when working near live electrical parts, including inspection of the work area, to identify potential spark sources, maintenance of a safe distance, proper illumination of the work areas, provision of barriers to prevent inadvertent contact, and use of nonconductive equipment. If overhead lines cannot be de-energized prior to the start of work, a 10-foot distance must be maintained between overhead energized power lines with a voltage of 50 kilovolts (kV) and elevated equipment parts. This distance will be increased 4 inches for every 10 kV greater than 50 kV. For example, workers must maintain a distance of 11.7 feet from energized power lines with a voltage of

100 kV.

3.1.7 Utilities

Underground utilities pose hazards to workers involved in drilling and other invasive operations such as excavation. These hazards include electrical hazards, explosion, and asphyxiation, as well as costly and annoying hazards associated with damaging communication, sewer, and water lines. Prior to commencement of invasive operations, the local one-call utility locating service shall be contacted to inspect and flag the area of investigation, allowing an appropriate amount of time in advance of those operations for the locaters to provide their service.

Personnel should be aware that although an area may be cleared, it does not mean that unanticipated hazards will not appear. Workers should always be alert for unanticipated events such as snapping cables, drilling into unmarked underground utilities, and drilling into a heavily contaminated zone, etc. Such occurrences should prompt involved individuals to halt work immediately and take appropriate corrective measures to gain control of the situation.

3.1.8 Weather

Weather conditions should always be taken into consideration. Heavy rains or snowfall, electrical storms, high winds, and extreme temperatures, for example, may create extremely dangerous situations for employees. Equipment performance may also be impaired because of inclement weather. Whenever unfavorable conditions arise, the Site Health and Safety Officer will evaluate both the safety hazards and ability of the employees to effectively perform given tasks under such conditions. Activities will be halted at their discretion. Wind direction should be accounted for when positioning equipment at sampling locations. If exposure to organic vapors is anticipated, workers should locate upwind of sampling points. Wind direction often changes abruptly and without warning, so personnel should always be prepared to reposition, if necessary. Workers should seek safe shelter at the first sound of thunder, when dark threatening clouds develop, or when lightning strikes. Personnel should count the seconds between the time between the sight of lightning and sound of thunder. A safe location is one that has this time duration of approximately 30 seconds. Personnel should stay inside until 30 minutes after the thunder or lightning subsides.

3.1.9 Biological

Any grassy area at the site may be territory for deer ticks or other insects, which may carry Lyme disease. Precautions that will be taken to reduce these hazards are clearing high vegetation within the work zones, minimizing movement through un-cleared areas, wearing long pants while onsite, applying insect repellant to clothing, and checking employees' clothing and bodies for ticks periodically.

Due to the location of the site, the known animal species that may potentially be encountered include squirrels, skunks, rats, deer, mice, snakes, and raccoons. These animals are typically afraid of human beings and will stay away from workers. However, any animal that acts

aggressively should be considered dangerous due to the possibility of rabies or potential infections from bites or punctures.

Poisonous snakes indigenous to the site area may include the pygmy rattler, water moccasin (cotton mouth), and copperhead. Use care when reaching into or moving objects, be familiar with habits and habitats of snake indigenous to area, wear knee-high boots or ankle-high boots with snake guards/chaps, chaps as appropriate, and clear grass and overgrown areas, when possible. If a snake is encountered, stay calm and look around; there may be other snakes in the vicinity. Turn around and walk away along the same path used to approach the area. If a person is bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Do not apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note the color, size, patterns, and markings. The three most common poisonous snakes in the site area are the pygmy rattlesnake, water moccasin (cotton mouth), and copperhead.

Poisonous plants (poison ivy, poison oak, poison sumac, etc.) may potentially be encountered at the site. Precautions should be taken to minimize exposure to plants by clearing vegetation, when necessary, within the work zone and wearing snake boots (if necessary), long-sleeve shirts, pants, safety glasses, and gloves. In addition to the biological and plant life hazards listed above, the following biohazard may be present.

During the site operations, EA employees may be exposed to blood and body secretions in support of emergency response operations where site personnel have been injured, and require first aid and/or cardiopulmonary resuscitation (CPR) – see Section 6.5. Due to the potential that blood and body secretions may contain disease-causing organisms such as the Hepatitis B Virus, and Human Immunodeficiency Virus, employees electing to provide first aid and CPR support (until the arrival of a competent onsite medical responder) should take appropriate measures to reduce or eliminate their potential for contact and exposure. The concept of "Universal Precautions" will be followed, assuming a potential hazard is present. Employees providing first aid support should wear the appropriate PPE to prevent or reduce their potential for contact and exposure. This will typically be accomplished through the use of nitrile gloves, splash-proof eye protection, and the use of mouth-to-mouth guards and proper cleanup (good sanitation and hygiene) following the incident. The hands and face should be thoroughly washed with water and antiseptic soap or cleanser following an incident, or antiseptic-containing disposable towelettes used in the absence of appropriate field washing facilities. The Health and Safety Coordinator should be notified of potential employee exposure to blood and body fluids while conducting work in support of this task order.

3.1.10 Vehicle and Pedestrian Traffic

Traffic at certain sites, particularly active sites in busy areas, presents a hazard to site personnel. Equipment must be located in an area that does not present hazards to bystanders. Barriers must be used to separate the work areas from both vehicle and pedestrian traffic areas and to prevent inadvertent entry of either type of traffic into the work area. Standard traffic cones are not considered adequate for these situations due to their low vertical profile. Taller, 28-inch cones can be effectively modified with warning flags and barricade tape. Barriers demarcating the work area are required even if the site is inactive during work operations.

Employees exposed to public vehicular traffic are required to wear warning vests or other suitable garments marked with or made of reflectorized or high visibility material. In excavation areas, excavated soil materials may be placed between the hole and traffic areas to act as a barrier to both vehicle and pedestrian traffic. Such material must be placed in a manner that will not pose engulfment hazards to either site workers or bystanders.

Adequate precautions and work zone marking should be made to prevent accidents during the period between work shifts.

3.1.11 Water/Drowning Hazard

While working around surface water features, sufficient care must be taken to prevent drowning hazards. Emergency flotation devices (i.e., ring buoys secured to throw lines of appropriate lengths) must be immediately accessible, in good and serviceable condition, and of appropriate size for the intended users. In addition, there will always be two persons while working near surface water features. Please see Section 3.5 Buddy System.

3.2 CHEMICAL HAZARDS

This section identifies known chemical hazards at the site.

3.2.1 Hazard Communication

The Site Health and Safety Officer will maintain material safety data sheets onsite for each chemical, if any, brought onsite during field activities. Subcontractors must inform the Site Manager/Site Health and Safety Officer of hazardous substances brought onsite, and provide the appropriate material safety data sheets to the Site Manager/Site Health and Safety Officer. Chemicals brought onsite must be labeled in accordance with OSHA Hazard Communication Requirements, 29 CFR 1926.59.

3.2.2 Chemical Hazards

Assumptions regarding potential chemical constituents were made by reviewing information from past investigation activities conducted at the site. Based on information provided by EPA, volatile organic compounds and semivolatile organic compounds, and metals associated with historical petroleum refinery operations have been previously detected in various site media. Any newly identified constituents detected during upcoming sampling activities will be evaluated and, if required, this HSP will be amended to address any new chemical hazards. In the absence of sufficient data, the concept of "Universal Precautions" will be followed, assuming that all potential constituents of concern are present while sampling. Concentrations detected are relatively low, and the likelihood of adverse health effects should be considered equally low.

Potential chemical hazards for Tasks 1 through 15 and their evaluation are summarized in Table 3.

TABLE 3 CHEMICAL HAZARD EVALUATION

Compound	OSHA PEL	ACGIH TLV	Routes of Exposure	Symptoms (Acute)	Dermal Hazard
Arsenic	0.01 mg/m^3 0.005 mg/m^3 Action Level	Carcinogen 5 mg/m^3	Inhalation Ingestion Skin/eye contact	Ulceration of nasal septum, dermatitis, gastrointestinal bleeding.	Yes
Benzene	0.5 ppm/2.5 ppm	Carcinogen 500 ppm	Inhalation Ingestion Absorption Skin/eye contact	Irritated eyes, nose, skin, respiratory system, nausea, headache, fatigue, dermatitis	Yes
Water-soluble Chromium VI compounds	0.005 mg/m^3	0.05 mg/m^3	Skin absorption Skin/eye contact	Irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), eucopenia (reduced blood leukocytes), eosinophilia; eye injury, conjunctivitis; skin ulcer, sensitization dermatitis; potential occupational carcinogen	Yes
Coal Tar Pitch Volatiles [a] (pyrene, phenanthrene, acridine, chrysene, anthracene, and benzo(a)pyrene)	0.2 mg/m^3 (benzene-soluble fraction)	0.2 mg/m^3 (benzene-soluble fraction)	Inhalation Skin/eye contact	Dermatitis, bronchitis, potential occupational carcinogen	Yes
Lead (and inorganic compounds as lead)	0.050 mg/m^3	0.050 mg/m^3	Inhalation Ingestion Skin/eye contact	Lassitude, insomnia, pallor, anoxia, weight loss, constipation, abdominal pain, colic, anemia, wrist paralysis.	Yes
Toluene	20 ppm Ceiling 300 ppm	500 ppm	Inhalation Ingestion Absorption Skin/eye contact	Irritated eyes, nose; fatigue, weakness, confusion, euphoria, dizziness, insomnia, nervousness, muscle fatigue, dermatitis	Yes
Xylene	100 ppm/150 ppm	900 ppm	Inhalation Ingestion Absorption Skin/eye contact	Dizziness, excitement, drowsiness, irritated eyes, nose and throat, nausea, vomiting, abdominal pain, and dermatitis	Yes

Compound	OSHA PEL	ACGIH TLV	Routes of Exposure	Symptoms (Acute)	Dermal Hazard

NOTES:
[a] NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products.
ACGIH = American Conference of Governmental Industrial Hygienists
ACGIH Threshold Limit Value (TLV) – Time-weighted average (TWA) concentration for up to an 8-hour workday during a 40-hour workweek.
mg/m^3 = milligram(s) per cubic meter
NIOSH = National Institute for Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
OSHA Permissible Exposure Limit (PEL) – TWA concentration for up to an 8-hour workday during a 40-hour workweek. OSHA PELs were adjusted to provide site-specific exposure levels for a TWA 10-hour workday.
Exposure Limits will also include the evaluation of site-specific background contributions, which will be determined onsite.
ppm = part(s) per million per volume

3.2.3 Chemicals for Equipment Calibrations and Operations

The following chemicals are typically supplied by the primary field program team:

- Alconox®
- Isopropyl alcohol
- Hydrochloric acid (sample preservative)
- Hydrogen gas
- Nitric acid (sample preservative)
- pH calibration standard solution
- Conductivity calibration standard solution
- Isobutylene calibration gas
- Methane calibration gas.

The following chemicals are typically supplied by the driller:

- Portland cement
- No. 2 silica sand
- Sodium bentonite
- Gasoline
- Diesel.

These chemicals will be used for equipment calibrations/operations, decontamination, well construction, and cleaning. The decontamination wastewater will be containerized as part of the investigation-derived waste and disposed offsite or treated onsite, as required. Portland cement, No. 2 silica sand, and sodium bentonite are typically used for well construction and plugging and abandonment activities. Chemicals used during the field activities will be properly contained and labeled. Occupational exposures will be negligible. Chemicals for preservation of samples will be handled in such a way that there is no exposure to these chemicals. Laboratory supplied sample jars with preservatives will be used to prevent handling of preservatives in the field. In addition, gasoline and diesel may be stored temporarily onsite in small quantities for the heavy equipment.

3.3 SAFE WORK PRACTICES

Safe work practices that must be followed by site workers include:

- The cleaning of hands immediately or as soon as feasible after removal of gloves by the use of antiseptic cleanser in conjunction with clean paper towels.

- The washing of hands and any other exposed skin with antiseptic cleanser and water immediately or as soon as feasible following contact with blood or other potentially infectious material. Staff shall also wash hands:
  - After removing PPE
  - After handling potentially infectious materials
  - After cleaning or decontaminating equipment
  - After using the bathroom
  - Before eating
  - Before and after handling or preparing food.

- Eat and drink only in those areas designated by the Site Health and Safety Officer. These activities will not take place within work zones.

- In the event a potential for chemical contamination exists onsite, employees will wash and conduct appropriate decontamination activities.

- Wear appropriate PPE all the time.

- Defective PPE must be repaired or replaced immediately.

- Each employee required to take prescription drugs will notify the Site Manager and/or Site Health and Safety Officer prior to the start of work. Controlled or unauthorized drugs will **not** be permitted onsite at any time.

- All procedures for sampling and/or analysis shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets. The slow and careful transfer of all potentially infectious liquids will accomplish this.

- All potentially infectious materials shall be placed in a clearly marked container, which prevents leakage during collection, handling, and transporting.

- If outside contamination of the primary container occurs, the primary container shall be placed within a second container, which prevents leakage during handling and transporting.

- Equipment that may become contaminated will be decontaminated as necessary.

3.4 ENVIRONMENTAL MONITORING

Environmental monitoring will include sufficient monitoring of air quality in work zones during intrusive field operations to assess levels of employee exposure and to verify that the level of PPE being worn by personnel is adequate. Site-specific monitoring requirements and action levels are provided in Table 4.

TABLE 4 SITE-SPECIFIC MONITORING REQUIREMENTS

Hazard	Activity	Monitoring Device	Action Level	Monitoring Frequency	Action
Organic vapors	2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, and 15	Photoionization detector/ flame ionization detector	Background to 5 ppm	Every 30 minutes initially, and as required by a change in site activity	Level D PPE
			5-50 ppm	Every 30 minutes initially, and as required by a change in site activity	Level C PPE
			>50 ppm	Not applicable	Stop work and evacuate; reevaluate
Noise	2, 3, 5, and 6	Rule of thumb method	Must shout to be heard at arm's length	When needed	Wear hearing protection

NOTES:
PPE = personal protective equipment
ppm = part(s) per million per volume
Field Activities:

1. Site reconnaissance (e. g., site survey)
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development
4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells
13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

3.5 BUDDY SYSTEM

Where practical, work at the site will be scheduled so that no employee works alone at any time. Each worker will either maintain a visual contact or audial contact (via two-way radios) with another specified worker at all times. The buddy system will ensure against an employee becoming stressed without a coworker being aware of his or her condition. Workers must "watch out" for each other while working close to potential chemical and physical hazards. Where practical, this fellow worker/observer must keep his/her partner in his/her line of sight at all times and be prepared to immediately assist in case of emergencies.

If a telephone is not immediately available for emergency use, an alarm or horn should be sounded to summon further help from others on the job site.

4. EMPLOYEE TRAINING

This section describes employee training procedures.

4.1 SITE PERSONNEL

Personnel who will be performing RI-related non-hazardous onsite tasks are not required to have been trained according to U.S. Department of Labor OSHA Standard, 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response.* These workers will have equivalent health and safety training based upon their specific job tasks and activities.

The Site Health and Safety Officer and personnel conducting the field activities will be trained as required to meet the U.S. Department of Labor OSHA Standard, 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response*, to qualify as hazardous waste site workers and supervisor. Training will include:

- A minimum of 40 hours of initial offsite instruction
- A minimum of 3 days of actual field experience under the direct supervision of a trained, experienced supervisor
- An 8-hour "refresher" training period annually
- Additional training that addresses unique or special hazards/operational requirements
- At least one person onsite at any time must be currently trained in first aid and CPR.

Onsite management and supervisors who are directly responsible for or who supervise employees will receive at least 8 additional hours of specialized management training.

In addition, personnel operating heavy equipment (e.g., front end loader, excavator) will be specifically trained in their operation. Personnel will be trained in the operation of hand-held

tools and in general operations at a construction site. EA will ensure that personnel are properly trained, and will provide training where necessary.

Copies of training certificates and dates of attendance will be available through the Site Health and Safety Officer upon request.

4.1.1 Subcontractor Training

Prior to start of work operations, the Project Manager will obtain a written list of subcontractor personnel to be onsite and written certification from subcontractor management that these workers meet the training requirements for their assigned tasks.

4.1.2 Pre-Entry Orientation Session

Prior to entering the site, personnel will attend a pre-entry orientation session presented by the Site Health and Safety Officer. Personnel will verify attendance of this meeting by signing the review record provided in Appendix A. Visitors entering designated work areas will be subject to applicable health and safety regulations during field operations at the site. The Site Manager/Site Health and Safety Officer is responsible for briefing the personnel onsite of potential hazards that may be encountered on the site, the presence and location of the site HSP, and emergency response procedures. Visitors will be under the direct supervision of the Site Manager/Site Health and Safety Officer his/her representative.

At a minimum, the pre-entry orientation session will discuss the contents of this HSP and will discuss the following items:

- Nature and degree of potential health and safety hazards associated with each planned task
- PPE to be worn for each task
- Decontamination procedures
- Training and medical surveillance requirements
- Safe work practices
- Emergency procedures.

A question and answer period will also be provided.

4.2 MEDICAL SURVEILLANCE

Hazardous waste site workers must have satisfactorily completed a comprehensive medical examination by a licensed physician within 12 months (or 24 months pending physician's approval) prior to the start of site operations. Subcontractors will provide this information in writing to the Project Manager for their workers prior to mobilization onsite. This information will be available onsite.

A licensed physician who is certified in Occupational Medicine by the American Board of Preventative Medicine will review medical surveillance protocol and examination results. Medical surveillance protocols will comply with 29 CFR 1926.65. The content of medical

examinations will be determined by the attending physician and will be based upon the guidelines in the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.* Medical examinations and consultations will be provided for employees covered by this program on the following schedule:

- Prior to field work assignment
- At least annually for employees covered by the program (or biennial with the approval of the occupational physician)
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not been examined within the past 6 months
- As soon as possible upon the development of signs or symptoms that may indicate an overexposure to hazardous substances or other health hazards, or that an unprotected person has been exposed in an emergency situation
- More frequently if the physician deems such examination necessary to maintain employee health.

An accurate record of the medical surveillance will be maintained for each employee for a period of no less than 30 years after the termination of employment. Records will be managed and maintained per recordkeeping provisions of EA's Safety and Health Program Manual (EA 2013). Records must include at least the following information about the employee:

- Name and Social Security Number
- Physician's written opinions, recommendations, limitations, and test results
- Employee medical complaints related to hazardous waste operations
- Information provided to the physician by the employee concerning possible exposures, accidents, etc.

4.3 HAZARD COMMUNICATION PROGRAM

EA's hazard communication program consists of hazard communication, hazard communication labeling, material safety data sheets, and hazard communication training. Each of these elements is further explained below.

4.3.1 Hazard Communication

The Site Health and Safety Officer will conduct regularly scheduled safety meetings with site workers to discuss the planned activities, since these activities and workers may change over the duration of the task order. The objective of instituting a Hazard Communication Program is to ensure that hazards associated with the site and with chemicals brought onsite by EA or

subcontractors are evaluated, and that information concerning these hazards is transmitted to site employees. Site personnel include EA and subcontractor employees, manufacturer's representatives, or local agency employees, and other workers who observe or perform services onsite. Employee awareness of chemical identities, health and physical hazards, properties, and characteristics is essential to safely handle chemicals and to minimize potential hazards. The Hazard Communication Program must follow OSHA requirements listed in 29 CFR 1926.59.

4.3.2 Hazard Communication Labeling

The Site Health and Safety Officer will ensure that containers are properly labeled and that workers know the contents of containers. Container labels will contain, at a minimum, information on name of product on container, chemical(s) in product, manufacturer's name and address, protective equipment required for the safe handling of the product, and first aid procedures in case of overexposure to product contents.

4.3.3 Material Safety Data Sheets

The Site Health and Safety Officer will maintain a current alphabetical file of complete material safety data sheets for each hazardous substance brought to, stored, or used at the work site. The file must be easily accessible to all employees. Subcontractors and visitors to the work place will be informed of the existence and location of this file. Workers and visitors will be instructed on how to read and understand the information shown on the material safety data sheets. Subcontractors must inform the Site Health and Safety Officer about hazardous substances that they bring onsite and provide material safety data sheets.

4.3.4 Hazard Communication Training

Site workers and visitors will be informed of the Hazard Communication Program, their legal rights under the program, the location of the chemical inventory, and the location of the material safety data sheets file. Prior to site work or potential exposure to hazardous substances, the Site Health and Safety Officer will describe hazardous substances routinely used and provide information about:

- Nature of potential chemical hazards
- Appropriate work practices
- Appropriate control programs
- Appropriate protective measures
- Methods to detect presence or release of hazardous substances
- Emergency procedures.

5. PERSONAL PROTECTIVE EQUIPMENT

This section describes the requirements, maintenance, and inspection of PPE.

5.1 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Based upon currently available information and the nature of the anticipated tasks, the level of protection selected for all the work tasks is Level D.

In the event that potential chemical hazards are identified, the level of protection may be upgraded appropriately to the potential hazard conditions by Site Health and Safety Officer. Only those personnel identified and qualified for hazardous waste work as defined in 29 CFR 1926.65 will be allowed to upgrade beyond Level D or provide support of hazardous material/substance contingency operations. Only the Site Health and Safety Officer, in conjunction with the Health and Safety Coordinator and Project Manager, will be allowed to approve PPE upgrade beyond Level D and site re-entry for the purpose of hazardous conditions assessment.

The following is a list of the Level D PPE components for the minimum level of protection authorized for use during this task order:

- Coveralls or appropriate work clothes.
- Steel-toe, steel-shank safety boots/shoes.
- Hard hats (if overhead hazards are present).
- Chemical resistant gloves (neoprene or nitrile) as appropriate to prevent contact during sample collection activities.
- Leather or cloth work gloves (as needed).
- Safety glasses with side shields and face shield (as needed) or impact-resistant chemical goggles; safety glasses, goggles, and face shields will meet American National Standards Institute requirements for impact resistance and safety.
- Hearing protectors (as needed). Note: hearing protection must be available and must be worn whenever noise levels exceed 85 dBA (noise level at which a shouted conversation cannot be understood at a 1-foot distance).
- High visibility reflective vests (traffic and/or heavy equipment operations).

5.2 MAINTENANCE AND IN-USE INSPECTION OF PERSONAL PROTECTIVE EQUIPMENT

Effective use of protective equipment requires that the equipment be properly used, maintained, and inspected periodically during the day. Site-specific issues and standard procedures will be reiterated during pre-entry training. Gloves and body coverings will be regularly inspected and replaced promptly if torn. Disposable coveralls will be replaced daily at a minimum. Reusable gloves will be decontaminated whenever exiting the area.

6. EMERGENCY RESPONSE AND REACTION TO SITE CONTINGENCIES

This section describes emergency procedures for the site.

6.1 EMERGENCY RECOGNITION

Prior to work startup, personnel must be familiar with emergency condition identification, notification, and response procedures.

The emergency telephone numbers for local emergency response and reporting organizations are provided in Table 5. Figure 2 presents directions to the nearest hospital.

TABLE 5 EMERGENCY TELEPHONE NUMBERS

Organization	Phone Number
Emergency – Ambulance	911 or (918) 367-5567
Bristow Fire Department	911 or (918) 367-3415
Bristow Police Department	911 or (918) 367-2251
Bristow Public Works (Water Department)	(918) 367-2454 (918) 367-2252 (After hours)
Poison Control Center	(800) 222-1222
Hospital – Bristow Medical Center 700 W. 7th Ave. Bristow, OK 74010	(918) 367-4424 (Emergency Room) (918) 367-2215 (Main)

Directions to Hospital:
From the site:
1. Depart W. 221st Street South (Refinery Road) towards McDonald Dr. 0.7 mi
2. Turn left onto OK-16 E / OK-48 S / OK-66 S 0.2 mi
3. Straight onto OK-16 E / OK-48 S / OK-66 S 0.5 mi
4. Turn right on W. 7th Street 0.5 mi
5. Straight on W. 7th Street 161 ft
6. Arrive at Bristow Medical Center

Name	Position	Work Phone	Cell Phone
EA Project Personnel			
To be determined	Site Safety Health Officer	---	---
To be determined	Site Manager	---	---
Tim Startz	Program Manager	(972) 315-3922	(214) 616-7027
Pete Garger	Program Health and Safety Officer	(410) 527-2425	(410) 790-6338
Teresa McMillan	Project Manager	(505) 224-9013	(505) 259-6779
Luis Vega	Alternate Project Manager	(972) 459-5040	(214) 280-9031
Brian Yost	Office Health and Safety Coordinator	(972) 315-3922	(214) 906-0253
EPA Project Personnel			
Katrina Higgins-Coltrain	EPA TOM/RPM	(214) 665-8143	---
Thomas Kady	EPA ERT WAM	(732) 906-6172	---
ODEQ Project Personnel			
Todd Downham	ODEQ RPM	(405) 702-5136	---

The Site Manager/Site Health and Safety Officer will rehearse/review emergency procedures and/or applicable site contingencies initially during site orientation and as part of the ongoing

site safety program with EA and subcontractor personnel. Offsite emergency personnel will ultimately handle onsite emergencies. Initial response and first aid treatment, however, will be provided onsite.

Person(s) identifying an accident, injury, emergency condition, or a scenario requiring implementation of a response in support of this HSP will immediately take actions to report the situation to the Site Manager/Site Health and Safety Officer. Notification may take place by runner, hand-held radio, or cell phone. The Site Manager/Site Health and Safety Officer will initiate the required response based upon the type of incident, following the procedures contained in this HSP. Chain-of-command and sign-in sheets for personnel on the site will be established at the beginning of each work day to ensure personnel are accounted for and who will take control should the Site Manager/Site Health and Safety Officer become injured.

The following items constitute those site conditions requiring an emergency response or contingency action in accordance with this HSP:

- Fire/explosion
- Heavy equipment accident
- Natural disaster
- Medical emergency
- Discovery of unanticipated hazards (e.g., unmarked utility lines, heavily contaminated material).

Follow-on operations to evaluate and control the source of fire, explosion, and hazardous material incidents will occur only after discussion with the Project Manager, Site Manager/Site Health and Safety Officer, and the Health and Safety Coordinator along with the EPA personnel.

The Site Manager/Site Health and Safety Officer will act as the emergency coordinator at the site to coordinate onsite activities and contingencies with outside response organizations. If the Site Manager/Site Health and Safety Officer is unable to act as the emergency coordinator, then the authority to take action will be transferred to the other designee, as determined by the Health and Safety Coordinator.

6.2 PRE-EMERGENCY PLANNING

The Site Health and Safety Officer will contact the applicable local emergency response organizations contained in Table 5 prior to beginning of the project to identify the emergency response requirements and commitments required to support this task order. The Project Manager, or designee, will contact those local authorities potentially required to respond in the event of an onsite emergency incident or contingency. This notification will inform each applicable agency of the starting date, anticipated scope of work, and existence of the HSP. A copy of the HSP will be made available to each emergency response agency upon request to the Project Manager. Emergency activities will be coordinated (as applicable) with the local emergency planning committee, as required in accordance with Superfund Amendments and Reauthorization Act Title III requirements.

6.3 OPERATIONS SHUTDOWN

The Site Health and Safety Officer may mandate operations shutdown. Conditions warranting work stoppage will include (but are not limited to):

- Fire
- Explosion
- Uncovering potentially dangerous buried hazardous materials
- Conditions immediately dangerous to life and health or the environment
- Potential for electrical storms
- Treacherous weather-related conditions
- Limited visibility
- Upgrading of site security threat conditions.

6.4 PROCEDURES FOR HANDLING EMERGENCY INCIDENTS

In the event of an emergency, the information available at that time must be properly evaluated and the appropriate steps taken to implement the emergency response plan. The Site Health and Safety Officer will assume command of the situation. He/she will alert the emergency management system per Table 1, and evacuate personnel to the pre-designated evacuation location. The Site Health and Safety Officer will make required notifications to include, but not be limited to, the EA Project Manager, EA Health and Safety Coordinator, EPA Point-of-Contact, as defined in this HSP and Table 5, and the appropriate federal and state agencies, as applicable.

Site personnel will have the capability of notifying emergency responders directly from the site using the onsite cell phone.

The Project Manager will complete and submit to an EPA-appointed representative an accident/loss and incident report (Appendix D), within 24 hours. The following information will be provided when reporting an emergency:

- Name and location of person reporting
- Location of accident/incident
- Name and affiliation of injured party
- Description of injuries, fire, spill, or explosion
- Status of medical aid and/or other emergency control efforts
- Details of chemicals involved
- Summary of accident, including suspected cause and time it occurred
- Temporary control measures taken to minimize further risk.

This information is not to be released under any circumstances to parties other than those listed in this section and emergency response team members. Once emergency response agencies have been notified, the Project Manager and EPA Point-of-Contact will be immediately notified.

6.5 MEDICAL EMERGENCIES

Personnel should always be alert for signs and symptoms of illnesses related to chemical, physical, and onsite health hazards. Severe injuries resulting from accidents must be recognized as emergencies and treated as such.

In a medical emergency, the Site Health and Safety Officer must sound the emergency alarm, upon which work must stop and personnel must move to the predesignated evacuation location. **If the emergency situation cannot be conveyed by word of mouth, cellular telephone, or two-way radio, a whistle or other horn will be sounded. Three short blasts, separated by a 2-second silence, will be used as the emergency signal.** Personnel currently trained in first aid will evaluate the nature of the injury, decontaminate the victim (if necessary), and initiate first aid assistance immediately and transport if appropriate. First aid will be administered only to limit further injury and stabilize the victim. The local Emergency Medical Services must be notified immediately if needed.

Although not anticipated, victims who are heavily contaminated with toxic or dangerous materials must be decontaminated before being transported from the site. Since no hazardous materials are anticipated, a formal decontamination station will not be available; however, there is an emergency eyewash station in each of the EA vehicles. Decontamination will consist of removal of contaminated coveralls/clothing, and wrapping the victim in a sheet or other cloth like material as necessary. No persons will re-enter the site of injury/illness until the cause of the injury or symptoms has been determined and controlled. At no time will personnel transport victims to emergency medical facilities unless the injury does not pose an immediate threat to life and transport to the emergency medical facility can be accomplished without the risk of further injury. Emergency Medical Services will be used to transport serious injuries offsite unless deemed otherwise by the Site Health and Safety Officer.

The Site Health and Safety Officer must complete a detailed report and submit it to the Project Manager within 24 hours of the following types of incidents:

- Job-related injuries and illnesses
- Accidents resulting in loss or damage to property
- Accidents involving vehicles and/or vessels, whether or not they result in damage to property or personnel
- Accidents in which there may have been no injury or property damage, but which have a high probability of recurring with at least a moderate risk to personnel or property
- Near-miss incidents that could have resulted in any of the conditions defined above.

An accident that results in a fatality or the hospitalization of three or more employees must be reported within 8 hours to the U.S. Department of Labor through the Project Manager and Program Health and Safety Officer. Subcontractors are responsible for their reporting to the U.S. Department of Labor.

In order to support onsite medical emergencies, first aid/emergency medical equipment will be available in the onsite company vehicle:

- Portable emergency eye wash
- A 20-pound multipurpose (ABC-rated) fire extinguisher
- An adequately stocked first aid kit
- Adequate supplies of potable water for decontamination, personal hygiene, and emergency use
- An emergency siren or horn
- Cell phone
- Copy of HSP.

6.6 FIRE/EXPLOSION EMERGENCIES

Fire and explosion must be immediately recognized as an emergency. The Site Health and Safety Officer must sound an emergency signal, and personnel must be decontaminated (if necessary) and evacuated to the pre-designated evacuation location. Only persons properly trained in fire suppression and other emergency response procedures will support control activities. Control activities will consist of the use of onsite portable fire extinguishers for limited fire suppression and employee evacuation. Upon sounding the emergency alarm, personnel will evacuate the hazard location and assemble at the designated site meeting area. Only the Site Health and Safety Officer, or those site personnel trained in the use of portable fire extinguishers, will attempt to suppress a site fire. Small, multi-purpose dry chemical extinguishers will be maintained in each EA vehicle onsite. Fires not able to be extinguished using onsite extinguishers will require the support of the local Fire Department. The Site Health and Safety Officer should take measures to reduce injury and illness by evacuating personnel from the hazard location as quickly as possible. The Site Health and Safety Officer must then notify the local Fire Department. The Site Health and Safety Officer will determine proper follow-up actions. Site personnel will not resume work during or after a fire/explosion incident until the Site Health and Safety Officer has directed that the incident is over and work may resume. During the incident, site personnel will remain outside the incident area and obey the instructions of the Site Health and Safety Officer.

6.7 EMERGENCY TELEPHONE NUMBERS

Communications will be by telephones located in the EA vehicle onsite and the field personnel will have access to this telephone to directly contact offsite emergency response organizations. Refer to Table 5 for a listing of emergency telephone numbers in Section 6.1.

6.8 CONTROL OF SITE PRODUCED AMBIENT NOISE LEVELS

In order to maintain ambient noise levels within acceptable standards, site activities will take place between 0700 and 1900 hours each workday. Equipment used onsite containing internal combustion engines will be required to have mufflers attenuating sound output 80 dBA at a distance of 50 feet from the operating equipment. Complaints by local inhabitants received by

the Site Health and Safety Officer will prompt sound level monitoring operations to ensure compliance with the standard.

7. SITE CONTROL AND WORK ZONES

The following work zones will be established during implementation of the field activities as a means of site control. Work zones will be established, if needed, in accordance with the following:

- **Exclusion Zone (EZ)**—This area has either known or potential contamination and has the highest potential for exposure to chemicals onsite. The outer boundary of the EZ is called the hotline. The hotline separates the area of known or potential contamination from the rest of the site. The hotline should initially be established by visually surveying the site for signs of contamination, providing sufficient space to protect personnel outside the zone, allowing an adequate area in which to conduct site operations, and for reducing the potential for contaminant migration. The hotline will be physically secured or clearly marked. During subsequent site operations, the boundary may be adjusted as more information becomes available. Persons who enter the EZ must wear the appropriate level of PPE for the degree and types of hazards present at the site.

- **Contamination Reduction Zone (CRZ)**—One access point to the EZ designated by the Site Health and Safety Officer.

  The purpose of the CRZ is to reduce the possibility that the Support Zone (SZ) will become contaminated or affected by the site hazards. Because of both distance and decontamination procedures, the degree of contamination in the CRZ generally will decrease as one moves from the hotline to the SZ.

  The CRZ will be established outside the areas of known or potential contamination. Contamination Reduction Corridors, which are access control points between the EZ and CRZ, should be established for both personnel and heavy equipment. These corridors should consist of an appropriate number of decontamination stations necessary to address the contaminants of the particular site (see National Institute of Occupational Safety and Health/OSHA/U.S. Coast Guard/U.S. Environmental Protection Agency *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985 for information on decontamination procedures and work zones).

- **Support Zone (SZ)**—Uncontaminated area and may include site vehicles.

  The SZ is the uncontaminated area where workers are unlikely to be exposed to hazardous substances or dangerous conditions. The SZ is the appropriate location for the equipment and supply center and other administrative or support functions that are necessary to keep site operations running efficiently.

Potentially contaminated clothing, equipment, and samples must remain outside the SZ until decontaminated. However, personnel located in the SZ must receive instruction in proper evacuation procedures in case of a hazardous substance emergency. The SZ should be upwind and as far from the EZ as practicable.

The level of PPE will depend upon the type of work performed and site monitoring data. Level D will be the minimum protection in the EZ. The CRZ will require a minimum Level D. No specific PPE requirements are needed in the SZ, as contaminated materials are prohibited from being stored in this area. Only authorized personnel will be permitted in the EZ and CRZ. Entering these zones will require donning the required PPE prior to entry. These zones will be established prior to beginning the field activities.

Exiting the EZ will require going through decontamination in the CRZ.

Safe work practices to be followed by site workers include:

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited in all the three zones at all times.
- Hands and face must be thoroughly washed upon leaving the work area.
- Personnel must not take prescription drugs unless specifically approved by a licensed physician who is familiar with the issues of worker exposure to hazardous materials.
- When respirators are required, facial hair that interferes with the face-to-face piece fit of the respirator will not be permitted.
- Work is allowed during daylight hours only.
- If dust is being visually generated in the EZ, the Site Health and Safety Officer will advise on procedures for misting or wetting the soil to prevent possible exposure from inhalation of soil contaminants.
- Possessing, using, purchasing, distributing, selling, or having controlled substances in your system during the workday, including meal or break periods onsite, is strictly prohibited.
- The use or possession of alcoholic beverages onsite is prohibited. Similarly, reporting to work or performing one's job assignments with excessive levels of alcohol in one's system will not be permitted.

8. REFERENCES

EA Engineering, Science, and Technology, Inc., PBC (EA). 2013. Corporate Safety and Health Program Manual. October.

Lockheed Martin. 2015a. EPA-ERT/SERAS Work Location Health and Safety Plan. Wilcox Refinery and Tank Farm Site, Bristow, Oklahoma. 14 September.

———. 2015b. Geophysical Survey at Wilcox Refinery Superfund Site in Bristow, OK. EPA-ERT/SERAS. SERAS-277-DTM-10315. 30 October.

National Institute of Occupational Safety and Health, Occupational Safety and Health Administration, U.S. Environmental Protection Agency, and U.S. Coast Guard. 1985. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. October.

Occupational Safety and Health Administration (OSHA). 2006. 29 CFR 1910.120. Hazardous Waste Operations and Emergency Response. Occupational Safety and Health Standards. Revised 1 July.

———. 29 CFR 1926. OSHA Standards for Construction Industry.

———. OSHA website. Chemical Sampling Information sheets. https://www.osha.gov/dts/chemicalsampling/data/CH_275600.html.

U.S. Environmental Protection Agency (EPA). 2013. Hazard Ranking System Documentation Record, Wilcox Oil Company. May

———. 2015. RAC II Fixed Rate Statement of Work (Revision 0) for Remedial Investigation and Feasibility Study Phase 2, Wilcox Oil Company Superfund Site, Bristow, Creek County, Oklahoma. 13 July.

Figures

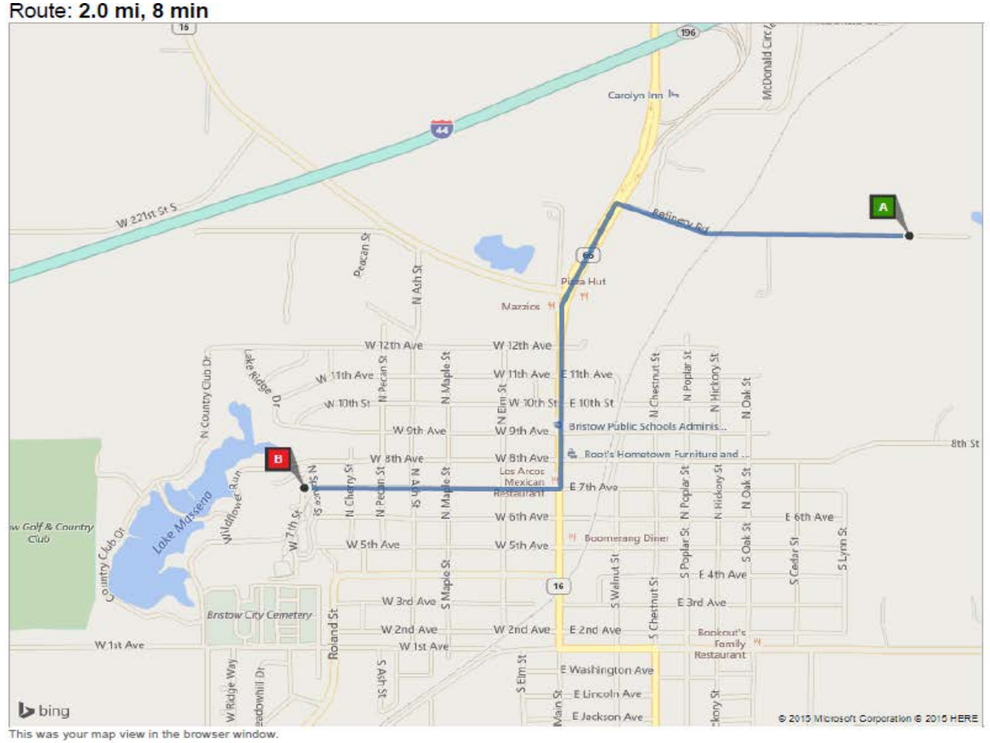
DIRECTIONS TO BRISTOW MEDICAL CENTER

A	**W 221st St S, Bristow, OK 74010**	**A–B: 2.0 mi** 8 min
	1. Depart **Refinery Rd** toward McDonald Dr	0.7 mi
	2. Turn **left** onto **OK-48 S / OK-66 S**	0.2 mi
	3. Keep **straight** onto **OK-16 E / OK-48 S / OK-66 S**	0.5 mi
	4. Turn **right** onto **W 7th St**	0.5 mi
	5. Keep **right** onto **road**	161 ft
B	6. Arrive at **Bristow Medical Center, OK** *The last intersection is W 7th St*	

SOURCE: MODIFIED FROM: Bing.com

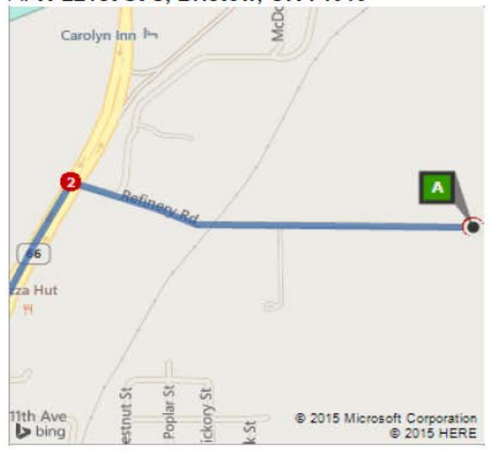
Note: This sheet must be posted on site

Route: **2.0 mi, 8 min**



This was your map view in the browser window.

A: **W 221st St S, Bristow, OK 74010**



B: **Bristow Medical Center, OK**

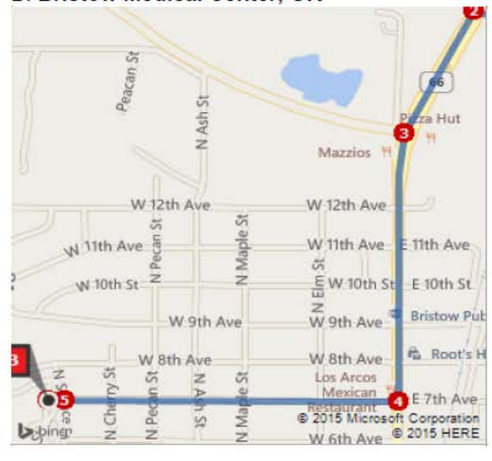


Figure 3: Hospital Route Map

Appendix A

Site Health and Safety Plan Review Record

APPENDIX A

SITE HEALTH AND SAFETY PLAN REVIEW RECORD

Site Name/Location: ____

I have read the Health and Safety Plan for this site and have been briefed on the nature, level, and degree of exposure likely as a result of participation in this project. I agree to conform to all the requirements of this Plan.

NAME	SIGNATURE	COMPANY	DATE

Appendix B

Daily Site Log

APPENDIX B

DAILY SITE LOG

Site Name:_____ Date: _____

Name (print)	Company	Time	
		In	Out

Comments:

_____

_____

_____

Appendix C

Daily Safety Meeting Form

APPENDIX C

DAILY SAFETY MEETING FORM

Date: _____ Time: _____Project No.: _____

Site Name/Location: _____

Site Activities Planned for Today: _____

_____

Safety Topics Discussed
Protective clothing and equipment:
Chemical hazards:
Physical hazards:
Environmental and biohazards:
Equipment hazards:
Decontamination procedures:
Other:
Review of emergency procedures and comments:

DAILY SAFETY MEETING FORM (CONTINUED)

Attendees	
Printed Name	**Signature**

Meeting Conducted by:

_____ _____

Name Title

_____

Signature

Appendix D

Accident/Loss and Incident Report

ACCIDENT/LOSS REPORT

THIS REPORT MUST BE COMPLETED BY THE INJURED EMPLOYEE OR SUPERVISOR AND FAXED TO EA CORPORATE HUMAN RESOURCES WITHIN 24 HOURS OF ANY ACCIDENT. THE FAX NUMBER IS **(410) 771-1780**.

NOTE WHENEVER AN EMPLOYEE IS SENT FOR MEDICAL TREATMENT FOR A WORK RELATED INJURY OR ILLNESS, PAGE 4 OF THIS REPORT MUST ACCOMPANY THAT INDIVIDUAL TO ENSURE THAT ALL INVOICES/BILLS/CORRESPONDENCE ARE SENT TO HUMAN RESOURCES FOR TIMELY RESPONSE.

a. DEMOGRAPHIC INFORMATION:

NAME OF INJURED EMPLOYEE:_____
HOME ADDRESS:_____
HOME PHONE:_____ DATE OF BIRTH:_____
AGE:_____ SEX: M F
MARITAL STATUS:_____ NAME OF SPOUSE (if applicable)_____
SOCIAL SECURITY NUMBER:_____ DATE OF HIRE:_____
NUMBER OF DEPENDENTS:_____
EMPLOYEES JOB TITLE:_____
DEPT. REGULARLY EMPLOYED:_____
WAS THE EMPLOYEE INJURED ON THE JOB: Y N
PRIMARY LANGUAGE OF THE EMPLOYEE: _____

b. ACCIDENT/INCIDENT INFORMATION:

DATE OF ACCIDENT:_____ TIME OF ACCIDENT:_____
REPORTED TO WHOM: _____ NAME OF SUPERVISOR_____
EXACT LOCATION WHERE ACCIDENT OCCURRED (**including street, city, state and County**):
EXPLAIN WHAT HAPPENED (include what the employee was doing at the time of the accident and how the accident occurred): _____
_____
_____
_____

DESCRIBE THE INJURY AND THE SPECIFIC PART OF THE BODY AFFECTED (i.e., laceration, right hand, third finger):
_____
_____

OBJECT OR SUBSTANCE THAT DIRECTLY INJURED EMPLOYEE:_____

NUMBER OF DAYS AND HOURS EMPLOYEE USUALLY WORKS PER WEEK:_____

IS THE EMPLOYEE EXPECTED TO LOSE AT LEAST ONE FULL DAY OF WORK?_____

DOES THE EMPLOYEE HAVE A PREVIOUS CLAIM? Y N if yes, STATUS Open Closed

WAS THE EMPLOYEE ASSIGNED TO RESTRICTED DUTY? _____

c. ACCIDENT INVESTIGATION INFORMATION

WAS SAFETY EQUIPMENT PROVIDED? Y N If yes, was it used? Y N

WAS AN UNSAFE ACT BEING FORMED ? Y N If yes, describe_____

WAS A MACHINE PART INVOLVED? Y N If yes, describe _____

WAS THE MACHINE PART DEFECTIVE? Y N If yes, in what way _____

WAS A 3RD PARTY RESPONSIBLE FOR THE ACCIDENT/INCIDENT? Y N

If yes, list Name, address and phone number_____

_____

WAS THE ACCIDENT/INCIDENT WITNESSED? Y N

If yes, list Name, address and phone number: _____

_____

d. PROVIDER INFORMATION

WAS FIRST AID GIVEN ON SITE? Y N

If yes, what type of medical treatment was given _____

PHYSICIAN INFORMATION (if medical attention was administered)

NAME:_____

_

ADDRESS (incl. City, state and zip):_____

PHONE:_____

HOSPITAL ADDRESS (incl. Name, address, city, state, zip code & phone)

_____

_____

_

WAS THE EMPLOYEE HOSPITALIZED? Y N If yes, on what date_____

WAS THE EMPLOYEE TREATED AS AN OUTPATIENT, RECEIVE EMERGENCY TREATMENT OR AMBULANCE SERVICE? _____

PLEASE ATTACH THE PHYSICIANS WRITTEN RETURN TO WORK SLIP

***NOTE* A PHYSICIANS RETURN TO WORK SLIP IS REQUIRED PRIOR TO ALLOWING THE WORKER TO RETURN TO WORK**

e. AUTOMOBILE ACCIDENT INFORMATION (complete if applicable)

AUTHORITY CONTACTED AND REPORT #_____
EA EMPLOYEE VEHICLE YEAR, MAKE AND MODEL_____
V.I.N._____ PLATE/TAG #_____
OWNER'S NAME AND ADDRESS:_____
DRIVER'S NAME AND ADDRESS: _____
RELATION TO INSURED:_____DRIVER'S LICENSE #_____
DESCRIBE DAMAGE TO YOUR PROPERTY:_____
DESCRIBE DAMAGE TO OTHER VEHICLE OR PROPERTY:_____
OTHER DRIVER'S NAME AND ADDRESS: _____
OTHER DRIVER'S PHONE:_____
OTHER DRIVER'S INSURANCE COMPANY AND PHONE:_____
LOCATION OF OTHER VEHICLE:_____
NAME, ADDRESS AND PHONE OF OTHER INJURED PARTIES:_____
WITNESSES

NAME:_____ PHONE:_____
ADDRESS:_____
STATEMENT:_____
SIGNATURE:
_____

NAME:_____ PHONE:_____
ADDRESS:_____
STATEMENT:_____
_____
SIGNATURE:
_____

f. ACKNOWLEDGEMENT

NAME OF SUPERVISOR:_____
DATE OF THIS REPORT: _____ REPORT PREPARED BY:_____

I have read this report and the contents as to how the accident/loss occurred is accurate to the best of my knowledge.

Signature: _____ Date: _____
Injured Employee

I am seeking medical treatment for a work related injury/illness.

Please forward all bills/invoices/correspondence to:

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

225 SCHILLING CIRCLE
SUITE 400
HUNT VALLEY, MD 21031

ATTENTION: MICHELE BAILEY
HUMAN RESOURCES

(410) 584-7000

INCIDENT REPORT

THIS REPORT IS TO BE COMPLETED WHEN A NEAR MISS OCCURS THAT COULD HAVE POTENTIALLY RESULTED IN SERIOUS PHYSICAL HARM. PLEASE FAX THIS FORM TO EA HUMAN RESOURCES DEPARTMENT AT **(410) 771-1780**.

EXPLAIN WHAT HAPPENED (include what the employee was doing at the time the near miss and how it occurred: _____

REPORT PREPARED BY: _____ DATE:_____

Appendix E

EPA ERT SERAS Figures

Health and Safety Plan for Remedial Investigation/Feasibility Study

Wilcox Oil Company Superfund Site
Bristow, Creek County, Oklahoma
EPA Identification No. OK0001010917

Remedial Action Contract 2 Full Service
Contract No.: EP-W-06-004
Task Order: 0128-RICO-06GG

Prepared for:

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

Prepared by:

EA Engineering, Science, and Technology, Inc., PBC
405 State Highway 121 (Bypass)
Building C, Suite 100
Lewisville, Texas 75067
(972) 315-3922

November 2015
Revision: 00
EA Project No. 14342.128

Health and Safety Plan for
Remedial Investigation/Feasibility Study

Wilcox Oil Company Superfund Site
Bristow, Creek County, Oklahoma
EPA Identification No. OK0001010917

Remedial Action Contract 2 Full Service
Contract No.: EP-W-06-004
Task Order: 0128-RICO-06GG

30 November 2015

Tim Startz., Program Manager — Date
EA Engineering, Science, and Technology, Inc., PBC

30 November 2015

Teresa McMillan, Project Manager — Date
EA Engineering, Science, and Technology, Inc., PBC

30 November 2015

Brian Yost, Office Health and Safety Coordinator — Date
EA Engineering, Science, and Technology, Inc., PBC

Revision: 00
EA Project No. 14342.128

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LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
CFR	Code of Federal Regulations
COPC	Chemical of potential concern
CPR	Cardiopulmonary resuscitation
CRZ	Contamination Reduction Zone
dBA	Decibel(s) on the A-weighted scale
EA	EA Engineering, Science, and Technology, Inc., PBC
EPA	U.S. Environmental Protection Agency
ERT	Environmental Response Team
EZ	Exclusion Zone
HSP	Health and Safety Plan
kV	Kilovolt(s)
mg/m^3	Milligram(s) per cubic meter
NIOSH	National Institute for Occupational Safety and Health
ODEQ	Oklahoma Department of Environmental Quality
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
ppm	Part(s) per million
PPE	Personal protective equipment
RI/FS	Remedial Investigation/Feasibility Study
RPM	Remedial Project Manager
TLV	Threshold Limit Value
TOM	Task Order Monitor
TWA	Time-Weighted Average
Site	Wilcox Oil Company Superfund Site
SZ	Support Zone
WAM	Work Assignment Manager

1. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA) has been authorized by the U.S Environmental Protection Agency (EPA), under Remedial Action Contract No. EP-W-06-004, Task Order 0128-RICO-06GG, to conduct a Remedial Investigation/Feasibility Study (RI/FS) at Wilcox Oil Company Superfund Site (site), Bristow, Creek County, Oklahoma.

1.1 PURPOSE

The purpose of this Health and Safety Plan (HSP) is to provide personnel with protection standards and mandatory safety practices, procedures, and contingencies to be followed while performing field activities at the site. This HSP as developed defines actions to be taken with respect to personal safety during work activities associated with the RI/FS field efforts.

EA considers the safety and health of its employees, clients, and visitors, and the prevention of work-related accidents and illness and property loss to be of the highest priority. Proactively implemented, a comprehensive and systematic health and safety program will result in more efficient and profitable operations by improving employee health and morale, and by reducing worker's compensation costs, lost time, fire and liability insurance premiums, and property damage. The objectives of EA's Safety and Health Program are to ensure:

1. Sound safety and health practices and conditions necessary for the protection of the health and welfare of employees, clients, and visitors

2. Compliance with federal and state safety and health regulations and standards

3. Effective safety and fire prevention practices necessary for protection of company-owned or operated property.

This HSP addresses the following regulations and guidance documents:

- Occupational Safety and Health Administration (OSHA) Standards for General Industry, 29 Code of Federal Regulations (CFR) 1910

- OSHA Standards for Construction Industry, 29 CFR 1926

- National Institute of Occupational Safety and Health, OSHA, EPA, and U.S. Coast Guard *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985.

One copy of this HSP will be maintained for use during the entire duration of field activities and made available for onsite use/employee review at all times.

The HSP Review Record in Appendix A must be signed by all personnel before they enter the site. Protocols established in this HSP are based on available site conditions/data and health and safety hazards known or anticipated to be present. This plan is intended solely for use during

proposed activities described in the corresponding site-specific Work Plan. Specifications herein are subject to review and revision based on actual conditions encountered in the field during site activities. Significant revisions to this plan must be approved by the Project Manager and the EA Health and Safety Coordinator.

1.2 BACKGROUND

A description of site history and the field activities covered by this HSP are included below.

1.2.1 Site History

The site is an abandoned and demolished oil refinery and associated tank farm located north of Bristow, Creek County, Oklahoma (Figure 1). The geographic coordinates of the site are approximately 35°50'31" North latitude and 96°23'02" West longitude. The site is the location of the former Wilcox Oil Company which operated as a crude oil refinery from the 1920s until the property was sold by Wilcox Oil Company on 1 November 1963. A modern skimming and cracking plant was constructed in 1929. The upgraded facility had an operating capacity of 4,000 barrels of crude oil per day. The main components of the system consisted of a skimming plant, cracking unit, and redistillation battery with a vapor recovery system and continuous treating equipment. The crude oil was brought directly from the field, eliminating storage and handling facilities, but resulting in crude with high bottom sediment and water. In 1937, the Wilcox Oil Company expanded operations by acquiring the former Lorraine Refinery facility west of the Stillwater Central Railroad tracks and the tank farm area to the east of the refinery (Appendix E, Figures 1 and 2). The two refineries span about 125 acres.

The site is currently inactive. A church and six residents are located within the former refinery boundaries. Three of the residences located on the eastern portion of the site are known to use water from domestic/private wells located on site. Intermittent streams drain the site and flow to Sand Creek, which follows the western and southwestern boundaries of the site. The site area is mostly rural with some residential, commercial, and industrial areas. Approximately 19 people live onsite and over 5,000 people live within 2 miles.

The site can be divided into three major former operational areas:

- Process Area – The former Wilcox Refinery process area is fenced and covers approximately 18 acres. Most of the equipment and storage tanks that remained onsite in 1963 were auctioned and salvaged for scrap iron by private land owners; any remaining structures are in ruins. Four aboveground storage tanks (12,500-gallon capacity each) remain standing, in addition to a number of discarded drums and pieces of scrap iron. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. A building in the northern part of the former refinery has been converted to a residence. An intermittent creek (West Tributary) flows southward across the eastern portion of the refinery area through a small pond in the southeast corner of the refinery area into Sand Creek.

- North Process Area/Tank Area/Loading Area – The former Lorraine Refinery area covers the southwestern portion of the site, south of Refinery Road and west of the railroad tracks. No refinery structures remain in either the processing area or refined product storage area. The First Assembly of God Church, playground, and one residence are located in this area. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. North of the church is the Lorraine Refinery tank area, whose boundaries are not well defined to the north. East of the Lorraine Refinery tank area across the railroad tracks is what appears to be a former loading area that has visible staining.

- Tank Farm Area – The former large crude oil storage area/tank farm covers approximately 80 acres and contains pits, ponds, and a number of circular berms that surround tank bottoms. All of the tanks have been cut down and removed; however, remnants of the tank storage contents remain and are visible. Many of the berms surrounding the pits, ponds, and former tanks have been cut or leveled. An intermittent creek (East Tributary) is located along the eastern portion of the tank farm and flows south to Sand Creek. A pumping or gas compressor station exists in the north-central portion of the site, and a Williams Company pipeline crosses from northwest to southeast across the middle of the site. There are four residences located on top of or directly next to former tank locations. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. Waste was also observed in several drainage channels that empty into Sand Creek.

The following chemicals of potential concern (COPCs) may be present at the site based on historical process information and previous site investigations:

- Coal tar pitch volatile compounds—such as anthracene, benzo(a)pyrene, chrysene, phenanthrene, and pyrene—in soil, sediment, and waste materials.

- Petroleum hydrocarbons—including gasoline-range organic and oil-range organic fractions—in soil, ground water, and waste materials. Volatile petroleum hydrocarbons may include benzene, toluene, ethyl benzene, and xylene

- Metals—such as barium, hexavalent chromium, copper, lead, and nickel—in soil, sediment, and waste materials.

The list of COPCs will be refined as the investigation progresses.

1.2.2 Scope of Work

The field activities covered by this HSP include:

1. Site reconnaissance
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development

4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells
13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

1.3 SAFETY, HEALTH, AND EMERGENCY RESPONSE PLAN ORGANIZATION

This HSP presents the approach to safety during execution of the task order activities conducted at the site. This section presents an introduction and outlines the report organization. Section 2 summarizes the project management team. Section 3 outlines the hazard communications and environmental monitoring during field operations. Section 4 presents the required employee training. Section 5 details personal protective equipment (PPE). Section 6 summarizes emergency response reactions to site contingencies. Section 7 outlines site controls and work zones.

Prior to arriving at the site, this HSP must be reviewed and an agreement to comply with the requirements must be signed by all personnel, including contractors, subcontractors, and visitors (Appendix A). Contractors and subcontractors are ultimately responsible for ensuring that their own personnel are adequately protected. In signing this agreement, the contractors and subcontractors acknowledge their responsibility for the implementation of the HSP requirements. All personnel onsite shall be informed of the site emergency response procedures and any potential health and safety hazards associated with site operations.

All personnel entering the site must participate in the daily safety meetings and sign the Daily Safety Meeting Form (Appendix C). In addition, a list of personnel onsite will be recorded in Daily Site Log (Appendix B) and maintained onsite.

2. PROJECT MANAGEMENT

This section identifies key personnel that will be involved in RI/FS activities at the site.

2.1 KEY PERSONNEL

Table 1 presents information on key project personnel:

TABLE 1 PROJECT PERSONNEL

Name	Position	Work Phone	Cell Phone
Katrina Higgins-Coltrain	EPA Task Order Monitor (TOM) EPA Remedial Project Manager (RPM)	(214) 665-8143	---
Todd Downham	Oklahoma Department of Environmental Quality (ODEQ) RPM	(405) 702-5136	---
Thomas Kady	EPA Environmental Response Team (ERT) Work Assignment Manager (WAM)	(732) 906-6172	---
Tim Startz	EA Program Manager	(972) 315-3922	(214) 616-7027
Pete Garger	EA Corporate Health and Safety Director	(410) 527-2425	(410) 790-6338
Teresa McMillan	EA Project Manager	(505) 224-9013	(505) 259-6779
Luis Vega	EA Alternate Project Manager	(972) 459-5040	(214) 280-9031
Brian Yost	EA Office Health and Safety Coordinator	(972) 315-3922	(214) 906-0253
To be determined	EA Site Manager	---	---
	EA Site Health and Safety Officer	---	---

2.2 RESPONSIBILITIES

Clear lines of authority will be established for enforcing compliance with the safety, health, and contingency procedures consistent with industry policies and procedures.

Designated EA personnel are responsible for implementation of the HSP during field activities. This includes field supervision; enforcing safe work practices and decontamination procedures (if needed); ensuring proper use of PPE; communicating site safety program modifications and requirements to site personnel; proper reporting of injuries, illnesses, and incidents to the appropriate internal and external organizations; and containing and controlling the loss of potentially hazardous materials to soil, air, and surface/ground water during all phases of investigation operations. In addition, EA personnel are responsible for implementing and directing emergency operations and coordinating with onsite and offsite emergency responders (if any).

In the event of an onsite injury, occupational illness, near miss, or environmental contamination incident, the following organizations/individuals will be notified as appropriate:

- Program Manager
- Office Health and Safety Coordinator
- Site Manager/Site Health and Safety Officer
- Corporate Health and Safety Director
- Project Manager.

2.2.1 Project Manager

The ***Project Manager*** has overall responsibility for site activities and will be the primary contact during field activities.

2.2.2 Health and Safety Coordinator

The ***Health and Safety Coordinator*** is responsible for administering the company health and safety program. The Health and Safety Coordinator will act in an advisory capacity to the Project Manager and personnel onsite for task order-specific health and safety issues. The Project Manager will establish a liaison between officers and representatives of the EPA and the Health and Safety Coordinator on matters relating to health and safety.

2.2.3 Site Health and Safety Officer

The ***Site Health and Safety Officer*** is responsible for coordination of onsite contingency operations, as well as the implementation of Site Health and Safety Program. The Site Health and Safety Officer will be onsite throughout the task order and will be responsible for daily compliance with site safety and health requirements.

For this task order, the Site Health and Safety Officer and the Site Manager will be one person. In the event of an emergency situation, the Site Manager/Site Health and Safety Officer will be responsible for initiating and coordinating emergency responses/contingency operations.

The Health and Safety Coordinator and Site Manager/Site Health and Safety Officer will have the authority to make on-the-spot corrections concerning safety, health, and environmental pollution infractions.

2.2.4 Site Manager

The ***Site Manager*** reports to the Project Manager and Health and Safety Coordinator. His/her responsibilities include, but are not limited to, providing technical support, evaluating onsite environmental monitoring results, coordinating site activities with subcontractors, initiating evacuation of the work site when needed, communicating with offsite emergency responders, and coordinating activities of onsite and offsite emergency responders.

2.2.5 Corporate Health and Safety Director

The ***Corporate Health and Safety Director*** reports to the senior management and is responsible for establishing and administering the company-wide health and safety program designed to ensure compliance with federal and state health and safety regulations and standards, and safe work practices.

2.2.6 Program Manager

The ***Program Manager*** reports directly to the senior management. He/she oversees management and coordination between client, staff, and subcontractors.

2.2.7 Employee Responsibilities

Employees are responsible for reading, understanding, and meeting the health and safety requirements contained in this HSP. A HSP Review Record sign-off sheet is provided in Appendix A. Employees are required to implement these procedures when conducting daily operations. This will also include receiving appropriate training and medical monitoring (if required) and utilization of EA provided health and safety equipment (to include all forms of PPE) to safely conduct site operations. Employees will review each task prior to commencement to consider the potential health and safety hazards, and the measures to be taken in the event of an emergency. Employees should know where material safety data sheets, first aid supplies, and emergency equipment are maintained. The Site Manager/Site Health and Safety Officer should be notified of potential health and safety hazards, near-miss conditions, or incidents present on the job site or unusual effects believed to be related to hazardous chemical exposures. Failure to follow established health and safety procedures could result in immediate dismissal from the site and, if repeated, a potential loss of employment.

2.2.8 Subcontractors

Responsibilities of subcontractor personnel include following the HSP and applicable health and safety rules, regulations, and procedures; using required controls, procedures, and safety devices, including PPE; notifying his/her supervisor of identified or suspected emergencies, safety, or health hazards; and complying with training and medical requirements (if required). Subcontractor personnel are responsible for reading, understanding, and meeting the health and safety requirements contained in this HSP in addition to their own HSP. The Site Health and Safety Plan Review Record in Appendix A must be signed by all subcontractors.

The subcontractors may elect to prepare a HSP Addendum, or they may adopt this HSP.

3. HAZARD EVALUATION AND CONTROL

Field activities to be performed by EA and subcontractors during the RI include the following tasks:

1. Site reconnaissance (e.g., site survey)
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development
4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells

13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

EA will oversee that Tasks 2, 3, and 5 listed above are completed by the appropriate non-team subcontractor. EA and team subcontractor staff will be responsible for completing the remaining tasks.

3.1 PHYSICAL AND BIOLOGICAL HAZARDS

Potential physical hazards and appropriate control measures are summarized in the following table for each of the above-listed tasks:

TABLE 2 PHYSICAL AND BIOLOGICAL HAZARD EVLUATION AND CONTROL

Hazard	Tasks	Control Measures
Biological	1 through 15	• Potential Hazard: Poison ivy, poison oak, snakes, insect bites, stings • Establish site-specific procedures for working around identified hazards • Insects – areas of heavy vegetation • Clear vegetation, when necessary, within the work zone and wear long-sleeve shirts, pants, and gloves. • Wear snake guards or chaps.
Cold Stress	1 through 15	• Provide warm break area and adequate breaks • Provide non-caffeinated beverages • Promote cold stress awareness.
Drilling	3 and 5	• Keep safe distance from the drill rig • Locate 'kill-switch' of the drill rig to stop the drill rig, in case of emergency • Cease activities during thunderstorm periods • Maintain line of sight to driller during drilling activities.
Fire and Explosion	2, 3, and 5	• Inform personnel of the locations of potential fire/explosion hazards • Identify subsurface utility lines, if possible • Establish site-specific procedures for working around flammables • Ensure that appropriate fire suppression equipment and systems are available and in good condition.
Heat Stress	1 through 15	• Promote heat stress awareness • Provide cool break areas and adequate breaks • Provide non-caffeinated beverages.
Heavy Equipment Operations	2, 3, and 5	• Ensure that the operators are properly trained and equipment has been properly inspected and maintained • Establish equipment routes, traffic patterns, and site-specific safety measures • Assign spotters and inform of proper hand signals and protocols • Wear reflective vests while working around heavy equipment • Keep safe distance from all the equipment • Lifting capacities and load limits of equipment will not be exceeded.
Impaling	1 through 15	• Sharp protruding objects (steel rebar, debris, etc.) – walk carefully • Wear proper PPE – hard hat, safety glass, steel-toed boots • Conduct work during daylight hours only.
Noise	2, 3, and 5	• Keep safe distance from all the equipment • Implement hearing protection measures

Hazard	Tasks	Control Measures
		• Establish noise level standards for all onsite equipment.
Power Tools	2, 3, 4, 5, and 7	• Comply with the requirements of 29 CFR 1926 Subpart P • Only allow trained personnel to use power tools • Wear proper PPE.
Site Debris	1 through 15	• Trip/Fall hazard – walk carefully • Wear proper PPE – hard hat, safety glass, steel-toed boots • Wear hard hat, safety glasses to protect against flying debris • Work only during daylight hours • Follow illumination requirements of 29 CFR 1926 Subpart P if sufficient illumination is absent • Contact local utility company, if required.
Vehicle and Pedestrian Traffic	1 through 15	• Barriers to separate work areas from vehicle and pedestrian traffic • Barriers demarcating work area even if site is inactive during work operations • Wear proper PPE – reflective vests or other high visibility material.
Utility Lines	2, 3 and 5	• Identify and locate existing utilities prior to work • Contact local utility company, if required • Keep safe distances from utility lines.
Water/Drowning Hazard	7, 9, and 14	• Have Emergency Flotation Device at worksite • Provide a ladder, rope, or other similar device for emergency egress from surface water features being sampled • Field work shall be conducted in pairs (two people all the time) • Wear proper PPE – personal flotation device, if appropriate

NOTES:
Field Activities:

1. Site reconnaissance (e. g., site survey)
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development
4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells
13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

The following section provides a brief description of physical hazards that may potentially be present during field activities. These physical hazards may include, but are not limited to:

- Fire/explosion
- Heat/cold stress
- Heavy equipment
- Noise
- Electrical

- Utilities
- Weather
- Biological
- Vehicular and pedestrian traffic
- Site debris
- Water/drowning Hazards.

The site will be visually inspected for the presence of general safety hazards (e.g., trip/slip hazards, unstable surfaces or steep grades, vehicle and pedestrian traffic, sharp objects) prior to beginning work. If hazards are identified, these hazards will be recorded and precautionary measures taken to prevent injury.

3.1.1 Fire/Explosion

The potential for fire and/or explosive conditions will exist. Workers must continuously monitor the work area for combustible or explosive gases when operations have the potential to generate sparks. Employees should always be alert for unexpected events, such as ignition of chemicals or sudden release of materials under pressure, and be prepared to act in these emergencies.

Smoking is not allowed at any time within the work area.

Field vehicles will be equipped with a fire extinguisher. Employees must be trained in the proper use of fire suppression equipment. However, professionals should handle large fires that cannot be controlled with a fire extinguisher. The proper authorities (local fire department) should be notified in these instances.

3.1.2 Heat Stress and Heat-Related Illness

Effects of heat stress and illness are possible during the performance of field activities at the site. Injury from heat exposure may occur to persons working outdoors during a period of high temperature conditions. This is a major concern when personnel are working in PPE clothing. The body's principal means of cooling is through the evaporation of sweat. When personnel are working in PPE, sweat is trapped inside the clothing and cannot evaporate, thus raising the body's core temperature and resulting in a heat-related illness. Monitoring will commence at temperatures of 70 °F and above when employees are wearing impervious full-body clothing.

Personnel should be familiar with the signs and symptoms of heat stress. These include:

- **Heat Cramps**—Painful contraction of voluntary muscles

- **Heat Exhaustion**—Dizziness, lightheadedness, slurred speech, rapid pulse, confusion, fainting, fatigue, copious perspiration, cool skin that is sometimes pale and clammy, and nausea

- **Heat Stroke**—Hot, dry, flushed skin; delirium; and coma (in some cases).

Resting frequently in a shaded area and consuming large quantities of fresh, potable water and electrolyte replenishing fluids (e.g., Gatorade) can prevent heat stress. If heat exhaustion symptoms are observed, the person will be required to rest in a shaded area and consume liquids. If symptoms are widespread or observed frequently, an appropriate work/rest regimen will be instituted. This may involve limiting the work period so that after 1 minute of rest, a person's heart rate does not exceed 110 beats per minute.

If the heart rate is higher than 110 beats per minute, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the heart rate is 110 beats per minute at the beginning of the next rest period, then the next cycle should be shortened by another 33 percent. Resting heart rate should be determined prior to starting onsite activities. A healthy individual's resting heart rate is usually 60–72 beats per minute. If symptoms of heat stroke are observed, the victim will be cooled immediately and transported to the nearest hospital. Workers should not hesitate to seek medical attention if heat stroke is suspected.

3.1.3 Effects of Cold Exposure

Cold stress can be caused by exposure to temperatures at or below freezing or to excessive wind at higher temperatures. When an individual's body temperature falls below 98.6°F, cold stress injuries may occur. The body's cells are composed primarily of water that can freeze when exposed to low temperatures, resulting in cell damage or death. Primary effects of cold exposure include frostnip, frostbite, and hypothermia:

- **Frostnip** commonly occurs as a result of surface tissue freezing at the tips of the ears, nose, cheeks, chin, fingertips, and toes. Symptoms of frostnip include the appearance of white shiny skin. If frostnip occurs, gradually warm the affected areas with a warm hand or warm breath. Do not rub.

- **Frostbite** occurs as the result of surface and subsurface tissues freezing. Symptoms include erythema (abnormal skin redness), blistering, throbbing pain, numbness, and swelling. If frostbite is suspected, move to a warm location and provide slow and steady re-warming.

- **Hypothermia** is the result of prolonged exposure to cold temperatures and body heat loss. Symptoms of hypothermia include body shivers, slow reaction time, mental confusion, glassy eyes, low body temperature, low pulse rate, and difficult respiration. Death can occur within 2 hours if not treated. If hypothermia is suspected, move to a warm location, remove wet and/or cold clothing, and provide re-warming as rapidly as possible. Provide both external heat (fire, electric blanket, body heat) and internal heat (hot liquids for conscious victims). Seek medical attention immediately.

In order to avoid potential cold stress, field personnel should take precautions against the cold and maintain body temperatures. This is most easily done by wearing the proper protective clothing, including insulated head and ear covering, gloves, insulated socks and/or boots, and insulated clothing in layers. If the potential exists for clothing to become wet, then the outer layer of clothing should be water repellent. Clothing that becomes wet with either water or

sweat should be replaced immediately. In addition, the work area can be protected by the placement of vehicles or tarps to reduce wind chill.

3.1.4 Heavy Equipment

The use of heavy equipment (e.g., drill rigs, front-end loader, excavator, dozer, dump trucks, vacuum trucks, concrete hauling trucks, generators, compressors, etc.) may pose safety hazards to site workers. Only trained, experienced personnel will conduct heavy equipment work. If possible, personnel must remain outside the turning radius of large, moving equipment. At a minimum, personnel must maintain visual contact with the equipment operator. No guards, safety appliances, or other devices may be removed or made ineffective unless repairs or maintenance are required, and then only after power has been shut off and locked out. Safety devices must be replaced once repair or maintenance is complete. Exhaust from equipment must be directed so that it does not endanger workers or obstruct the view of the operator. When not operational, equipment must be set and locked so that it cannot be activated, released, dropped, etc.

No employee is permitted under loads being handled by lifting equipment. Personnel are required to stand away from any vehicle being loaded or unloaded to avoid being struck by falling material. All personnel will wear high-visibility; reflective vests while onsite to aid in being seen by equipment operators.

3.1.5 Noise

Large equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, or distracted; can cause physical damage to the ear, pain, and temporary and/or permanent hearing loss; and can interfere with communication. If workers are subjected to noise exceeding an 8-hour time-weighted average sound level of 85 dBA (decibels on the A-weighted scale), hearing protection will be selected with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and to reduce noise levels to or below the permissible values. Therefore, during the field activities where workers are using heavy equipment, such as drill rigs, front-end loader, excavator, dozer, dump trucks, vacuum trucks, concrete hauling trucks, generators, compressors, etc., hearing protection must be utilized.

3.1.6 Electrical

Overhead power lines, electrical wiring, electrical equipment, and buried cables pose risks to workers of electric shock, burns, muscle twitches, heart fibrillation, and other physical injuries, as well as fire and explosion hazards. Workers will take appropriate protective measures when working near live electrical parts, including inspection of the work area, to identify potential spark sources, maintenance of a safe distance, proper illumination of the work areas, provision of barriers to prevent inadvertent contact, and use of nonconductive equipment. If overhead lines cannot be de-energized prior to the start of work, a 10-foot distance must be maintained between overhead energized power lines with a voltage of 50 kilovolts (kV) and elevated equipment parts. This distance will be increased 4 inches for every 10 kV greater than 50 kV. For example, workers must maintain a distance of 11.7 feet from energized power lines with a voltage of

100 kV.

3.1.7 Utilities

Underground utilities pose hazards to workers involved in drilling and other invasive operations such as excavation. These hazards include electrical hazards, explosion, and asphyxiation, as well as costly and annoying hazards associated with damaging communication, sewer, and water lines. Prior to commencement of invasive operations, the local one-call utility locating service shall be contacted to inspect and flag the area of investigation, allowing an appropriate amount of time in advance of those operations for the locaters to provide their service.

Personnel should be aware that although an area may be cleared, it does not mean that unanticipated hazards will not appear. Workers should always be alert for unanticipated events such as snapping cables, drilling into unmarked underground utilities, and drilling into a heavily contaminated zone, etc. Such occurrences should prompt involved individuals to halt work immediately and take appropriate corrective measures to gain control of the situation.

3.1.8 Weather

Weather conditions should always be taken into consideration. Heavy rains or snowfall, electrical storms, high winds, and extreme temperatures, for example, may create extremely dangerous situations for employees. Equipment performance may also be impaired because of inclement weather. Whenever unfavorable conditions arise, the Site Health and Safety Officer will evaluate both the safety hazards and ability of the employees to effectively perform given tasks under such conditions. Activities will be halted at their discretion. Wind direction should be accounted for when positioning equipment at sampling locations. If exposure to organic vapors is anticipated, workers should locate upwind of sampling points. Wind direction often changes abruptly and without warning, so personnel should always be prepared to reposition, if necessary. Workers should seek safe shelter at the first sound of thunder, when dark threatening clouds develop, or when lightning strikes. Personnel should count the seconds between the time between the sight of lightning and sound of thunder. A safe location is one that has this time duration of approximately 30 seconds. Personnel should stay inside until 30 minutes after the thunder or lightning subsides.

3.1.9 Biological

Any grassy area at the site may be territory for deer ticks or other insects, which may carry Lyme disease. Precautions that will be taken to reduce these hazards are clearing high vegetation within the work zones, minimizing movement through un-cleared areas, wearing long pants while onsite, applying insect repellant to clothing, and checking employees' clothing and bodies for ticks periodically.

Due to the location of the site, the known animal species that may potentially be encountered include squirrels, skunks, rats, deer, mice, snakes, and raccoons. These animals are typically afraid of human beings and will stay away from workers. However, any animal that acts

aggressively should be considered dangerous due to the possibility of rabies or potential infections from bites or punctures.

Poisonous snakes indigenous to the site area may include the pygmy rattler, water moccasin (cotton mouth), and copperhead. Use care when reaching into or moving objects, be familiar with habits and habitats of snake indigenous to area, wear knee-high boots or ankle-high boots with snake guards/chaps, chaps as appropriate, and clear grass and overgrown areas, when possible. If a snake is encountered, stay calm and look around; there may be other snakes in the vicinity. Turn around and walk away along the same path used to approach the area. If a person is bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Do not apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note the color, size, patterns, and markings. The three most common poisonous snakes in the site area are the pygmy rattlesnake, water moccasin (cotton mouth), and copperhead.

Poisonous plants (poison ivy, poison oak, poison sumac, etc.) may potentially be encountered at the site. Precautions should be taken to minimize exposure to plants by clearing vegetation, when necessary, within the work zone and wearing snake boots (if necessary), long-sleeve shirts, pants, safety glasses, and gloves. In addition to the biological and plant life hazards listed above, the following biohazard may be present.

During the site operations, EA employees may be exposed to blood and body secretions in support of emergency response operations where site personnel have been injured, and require first aid and/or cardiopulmonary resuscitation (CPR) – see Section 6.5. Due to the potential that blood and body secretions may contain disease-causing organisms such as the Hepatitis B Virus, and Human Immunodeficiency Virus, employees electing to provide first aid and CPR support (until the arrival of a competent onsite medical responder) should take appropriate measures to reduce or eliminate their potential for contact and exposure. The concept of "Universal Precautions" will be followed, assuming a potential hazard is present. Employees providing first aid support should wear the appropriate PPE to prevent or reduce their potential for contact and exposure. This will typically be accomplished through the use of nitrile gloves, splash-proof eye protection, and the use of mouth-to-mouth guards and proper cleanup (good sanitation and hygiene) following the incident. The hands and face should be thoroughly washed with water and antiseptic soap or cleanser following an incident, or antiseptic-containing disposable towelettes used in the absence of appropriate field washing facilities. The Health and Safety Coordinator should be notified of potential employee exposure to blood and body fluids while conducting work in support of this task order.

3.1.10 Vehicle and Pedestrian Traffic

Traffic at certain sites, particularly active sites in busy areas, presents a hazard to site personnel. Equipment must be located in an area that does not present hazards to bystanders. Barriers must be used to separate the work areas from both vehicle and pedestrian traffic areas and to prevent inadvertent entry of either type of traffic into the work area. Standard traffic cones are not considered adequate for these situations due to their low vertical profile. Taller, 28-inch cones can be effectively modified with warning flags and barricade tape. Barriers demarcating the work area are required even if the site is inactive during work operations.

Employees exposed to public vehicular traffic are required to wear warning vests or other suitable garments marked with or made of reflectorized or high visibility material. In excavation areas, excavated soil materials may be placed between the hole and traffic areas to act as a barrier to both vehicle and pedestrian traffic. Such material must be placed in a manner that will not pose engulfment hazards to either site workers or bystanders.

Adequate precautions and work zone marking should be made to prevent accidents during the period between work shifts.

3.1.11 Water/Drowning Hazard

While working around surface water features, sufficient care must be taken to prevent drowning hazards. Emergency flotation devices (i.e., ring buoys secured to throw lines of appropriate lengths) must be immediately accessible, in good and serviceable condition, and of appropriate size for the intended users. In addition, there will always be two persons while working near surface water features. Please see Section 3.5 Buddy System.

3.2 CHEMICAL HAZARDS

This section identifies known chemical hazards at the site.

3.2.1 Hazard Communication

The Site Health and Safety Officer will maintain material safety data sheets onsite for each chemical, if any, brought onsite during field activities. Subcontractors must inform the Site Manager/Site Health and Safety Officer of hazardous substances brought onsite, and provide the appropriate material safety data sheets to the Site Manager/Site Health and Safety Officer. Chemicals brought onsite must be labeled in accordance with OSHA Hazard Communication Requirements, 29 CFR 1926.59.

3.2.2 Chemical Hazards

Assumptions regarding potential chemical constituents were made by reviewing information from past investigation activities conducted at the site. Based on information provided by EPA, volatile organic compounds and semivolatile organic compounds, and metals associated with historical petroleum refinery operations have been previously detected in various site media. Any newly identified constituents detected during upcoming sampling activities will be evaluated and, if required, this HSP will be amended to address any new chemical hazards. In the absence of sufficient data, the concept of "Universal Precautions" will be followed, assuming that all potential constituents of concern are present while sampling. Concentrations detected are relatively low, and the likelihood of adverse health effects should be considered equally low.

Potential chemical hazards for Tasks 1 through 15 and their evaluation are summarized in Table 3.

TABLE 3 CHEMICAL HAZARD EVALUATION

Compound	OSHA PEL	ACGIH TLV	Routes of Exposure	Symptoms (Acute)	Dermal Hazard
Arsenic	0.01 mg/m^3 0.005 mg/m^3 Action Level	Carcinogen 5 mg/m^3	Inhalation Ingestion Skin/eye contact	Ulceration of nasal septum, dermatitis, gastrointestinal bleeding.	Yes
Benzene	0.5 ppm/2.5 ppm	Carcinogen 500 ppm	Inhalation Ingestion Absorption Skin/eye contact	Irritated eyes, nose, skin, respiratory system, nausea, headache, fatigue, dermatitis	Yes
Water-soluble Chromium VI compounds	0.005 mg/m^3	0.05 mg/m^3	Skin absorption Skin/eye contact	Irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), eucopenia (reduced blood leukocytes), eosinophilia; eye injury, conjunctivitis; skin ulcer, sensitization dermatitis; potential occupational carcinogen	Yes
Coal Tar Pitch Volatiles [a] (pyrene, phenanthrene, acridine, chrysene, anthracene, and benzo(a)pyrene)	0.2 mg/m^3 (benzene-soluble fraction)	0.2 mg/m^3 (benzene-soluble fraction)	Inhalation Skin/eye contact	Dermatitis, bronchitis, potential occupational carcinogen	Yes
Lead (and inorganic compounds as lead)	0.050 mg/m^3	0.050 mg/m^3	Inhalation Ingestion Skin/eye contact	Lassitude, insomnia, pallor, anoxia, weight loss, constipation, abdominal pain, colic, anemia, wrist paralysis.	Yes
Toluene	20 ppm Ceiling 300 ppm	500 ppm	Inhalation Ingestion Absorption Skin/eye contact	Irritated eyes, nose; fatigue, weakness, confusion, euphoria, dizziness, insomnia, nervousness, muscle fatigue, dermatitis	Yes
Xylene	100 ppm/150 ppm	900 ppm	Inhalation Ingestion Absorption Skin/eye contact	Dizziness, excitement, drowsiness, irritated eyes, nose and throat, nausea, vomiting, abdominal pain, and dermatitis	Yes

Compound	OSHA PEL	ACGIH TLV	Routes of Exposure	Symptoms (Acute)	Dermal Hazard

NOTES:
[a] NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products.
ACGIH = American Conference of Governmental Industrial Hygienists
ACGIH Threshold Limit Value (TLV) – Time-weighted average (TWA) concentration for up to an 8-hour workday during a 40-hour workweek.
mg/m^3 = milligram(s) per cubic meter
NIOSH = National Institute for Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
OSHA Permissible Exposure Limit (PEL) – TWA concentration for up to an 8-hour workday during a 40-hour workweek. OSHA PELs were adjusted to provide site-specific exposure levels for a TWA 10-hour workday.
Exposure Limits will also include the evaluation of site-specific background contributions, which will be determined onsite.
ppm = part(s) per million per volume

3.2.3 Chemicals for Equipment Calibrations and Operations

The following chemicals are typically supplied by the primary field program team:

- Alconox®
- Isopropyl alcohol
- Hydrochloric acid (sample preservative)
- Hydrogen gas
- Nitric acid (sample preservative)
- pH calibration standard solution
- Conductivity calibration standard solution
- Isobutylene calibration gas
- Methane calibration gas.

The following chemicals are typically supplied by the driller:

- Portland cement
- No. 2 silica sand
- Sodium bentonite
- Gasoline
- Diesel.

These chemicals will be used for equipment calibrations/operations, decontamination, well construction, and cleaning. The decontamination wastewater will be containerized as part of the investigation-derived waste and disposed offsite or treated onsite, as required. Portland cement, No. 2 silica sand, and sodium bentonite are typically used for well construction and plugging and abandonment activities. Chemicals used during the field activities will be properly contained and labeled. Occupational exposures will be negligible. Chemicals for preservation of samples will be handled in such a way that there is no exposure to these chemicals. Laboratory supplied sample jars with preservatives will be used to prevent handling of preservatives in the field. In addition, gasoline and diesel may be stored temporarily onsite in small quantities for the heavy equipment.

3.3 SAFE WORK PRACTICES

Safe work practices that must be followed by site workers include:

- The cleaning of hands immediately or as soon as feasible after removal of gloves by the use of antiseptic cleanser in conjunction with clean paper towels.

- The washing of hands and any other exposed skin with antiseptic cleanser and water immediately or as soon as feasible following contact with blood or other potentially infectious material. Staff shall also wash hands:
  - After removing PPE
  - After handling potentially infectious materials
  - After cleaning or decontaminating equipment
  - After using the bathroom
  - Before eating
  - Before and after handling or preparing food.

- Eat and drink only in those areas designated by the Site Health and Safety Officer. These activities will not take place within work zones.

- In the event a potential for chemical contamination exists onsite, employees will wash and conduct appropriate decontamination activities.

- Wear appropriate PPE all the time.

- Defective PPE must be repaired or replaced immediately.

- Each employee required to take prescription drugs will notify the Site Manager and/or Site Health and Safety Officer prior to the start of work. Controlled or unauthorized drugs will **not** be permitted onsite at any time.

- All procedures for sampling and/or analysis shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets. The slow and careful transfer of all potentially infectious liquids will accomplish this.

- All potentially infectious materials shall be placed in a clearly marked container, which prevents leakage during collection, handling, and transporting.

- If outside contamination of the primary container occurs, the primary container shall be placed within a second container, which prevents leakage during handling and transporting.

- Equipment that may become contaminated will be decontaminated as necessary.

3.4 ENVIRONMENTAL MONITORING

Environmental monitoring will include sufficient monitoring of air quality in work zones during intrusive field operations to assess levels of employee exposure and to verify that the level of PPE being worn by personnel is adequate. Site-specific monitoring requirements and action levels are provided in Table 4.

TABLE 4 SITE-SPECIFIC MONITORING REQUIREMENTS

Hazard	Activity	Monitoring Device	Action Level	Monitoring Frequency	Action
Organic vapors	2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, and 15	Photoionization detector/ flame ionization detector	Background to 5 ppm	Every 30 minutes initially, and as required by a change in site activity	Level D PPE
			5-50 ppm	Every 30 minutes initially, and as required by a change in site activity	Level C PPE
			>50 ppm	Not applicable	Stop work and evacuate; reevaluate
Noise	2, 3, 5, and 6	Rule of thumb method	Must shout to be heard at arm's length	When needed	Wear hearing protection

NOTES:
PPE = personal protective equipment
ppm = part(s) per million per volume
Field Activities:
1. Site reconnaissance (e. g., site survey)
2. Site preparation, including clearing and chipping activities
3. Monitoring well installation and development
4. Monitoring well sampling
5. Subsurface soil boring activities
6. Surface and subsurface soil sampling
7. Sediment and surface water sampling
8. Air sampling
9. Biota sampling (e.g., fish, invertebrates, and plants)
10. Waste sampling
11. Ground water elevation measurements
12. Surveying monitoring wells
13. Aquifer testing
14. Ecological assessment (if warranted)
15. Management of investigation-derived waste.

3.5 BUDDY SYSTEM

Where practical, work at the site will be scheduled so that no employee works alone at any time. Each worker will either maintain a visual contact or audial contact (via two-way radios) with another specified worker at all times. The buddy system will ensure against an employee becoming stressed without a coworker being aware of his or her condition. Workers must "watch out" for each other while working close to potential chemical and physical hazards. Where practical, this fellow worker/observer must keep his/her partner in his/her line of sight at all times and be prepared to immediately assist in case of emergencies.

If a telephone is not immediately available for emergency use, an alarm or horn should be sounded to summon further help from others on the job site.

4. EMPLOYEE TRAINING

This section describes employee training procedures.

4.1 SITE PERSONNEL

Personnel who will be performing RI-related non-hazardous onsite tasks are not required to have been trained according to U.S. Department of Labor OSHA Standard, 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response.* These workers will have equivalent health and safety training based upon their specific job tasks and activities.

The Site Health and Safety Officer and personnel conducting the field activities will be trained as required to meet the U.S. Department of Labor OSHA Standard, 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response*, to qualify as hazardous waste site workers and supervisor. Training will include:

- A minimum of 40 hours of initial offsite instruction
- A minimum of 3 days of actual field experience under the direct supervision of a trained, experienced supervisor
- An 8-hour "refresher" training period annually
- Additional training that addresses unique or special hazards/operational requirements
- At least one person onsite at any time must be currently trained in first aid and CPR.

Onsite management and supervisors who are directly responsible for or who supervise employees will receive at least 8 additional hours of specialized management training.

In addition, personnel operating heavy equipment (e.g., front end loader, excavator) will be specifically trained in their operation. Personnel will be trained in the operation of hand-held

tools and in general operations at a construction site. EA will ensure that personnel are properly trained, and will provide training where necessary.

Copies of training certificates and dates of attendance will be available through the Site Health and Safety Officer upon request.

4.1.1 Subcontractor Training

Prior to start of work operations, the Project Manager will obtain a written list of subcontractor personnel to be onsite and written certification from subcontractor management that these workers meet the training requirements for their assigned tasks.

4.1.2 Pre-Entry Orientation Session

Prior to entering the site, personnel will attend a pre-entry orientation session presented by the Site Health and Safety Officer. Personnel will verify attendance of this meeting by signing the review record provided in Appendix A. Visitors entering designated work areas will be subject to applicable health and safety regulations during field operations at the site. The Site Manager/Site Health and Safety Officer is responsible for briefing the personnel onsite of potential hazards that may be encountered on the site, the presence and location of the site HSP, and emergency response procedures. Visitors will be under the direct supervision of the Site Manager/Site Health and Safety Officer his/her representative.

At a minimum, the pre-entry orientation session will discuss the contents of this HSP and will discuss the following items:

- Nature and degree of potential health and safety hazards associated with each planned task
- PPE to be worn for each task
- Decontamination procedures
- Training and medical surveillance requirements
- Safe work practices
- Emergency procedures.

A question and answer period will also be provided.

4.2 MEDICAL SURVEILLANCE

Hazardous waste site workers must have satisfactorily completed a comprehensive medical examination by a licensed physician within 12 months (or 24 months pending physician's approval) prior to the start of site operations. Subcontractors will provide this information in writing to the Project Manager for their workers prior to mobilization onsite. This information will be available onsite.

A licensed physician who is certified in Occupational Medicine by the American Board of Preventative Medicine will review medical surveillance protocol and examination results. Medical surveillance protocols will comply with 29 CFR 1926.65. The content of medical

examinations will be determined by the attending physician and will be based upon the guidelines in the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.* Medical examinations and consultations will be provided for employees covered by this program on the following schedule:

- Prior to field work assignment
- At least annually for employees covered by the program (or biennial with the approval of the occupational physician)
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not been examined within the past 6 months
- As soon as possible upon the development of signs or symptoms that may indicate an overexposure to hazardous substances or other health hazards, or that an unprotected person has been exposed in an emergency situation
- More frequently if the physician deems such examination necessary to maintain employee health.

An accurate record of the medical surveillance will be maintained for each employee for a period of no less than 30 years after the termination of employment. Records will be managed and maintained per recordkeeping provisions of EA's Safety and Health Program Manual (EA 2013). Records must include at least the following information about the employee:

- Name and Social Security Number
- Physician's written opinions, recommendations, limitations, and test results
- Employee medical complaints related to hazardous waste operations
- Information provided to the physician by the employee concerning possible exposures, accidents, etc.

4.3 HAZARD COMMUNICATION PROGRAM

EA's hazard communication program consists of hazard communication, hazard communication labeling, material safety data sheets, and hazard communication training. Each of these elements is further explained below.

4.3.1 Hazard Communication

The Site Health and Safety Officer will conduct regularly scheduled safety meetings with site workers to discuss the planned activities, since these activities and workers may change over the duration of the task order. The objective of instituting a Hazard Communication Program is to ensure that hazards associated with the site and with chemicals brought onsite by EA or

subcontractors are evaluated, and that information concerning these hazards is transmitted to site employees. Site personnel include EA and subcontractor employees, manufacturer's representatives, or local agency employees, and other workers who observe or perform services onsite. Employee awareness of chemical identities, health and physical hazards, properties, and characteristics is essential to safely handle chemicals and to minimize potential hazards. The Hazard Communication Program must follow OSHA requirements listed in 29 CFR 1926.59.

4.3.2 Hazard Communication Labeling

The Site Health and Safety Officer will ensure that containers are properly labeled and that workers know the contents of containers. Container labels will contain, at a minimum, information on name of product on container, chemical(s) in product, manufacturer's name and address, protective equipment required for the safe handling of the product, and first aid procedures in case of overexposure to product contents.

4.3.3 Material Safety Data Sheets

The Site Health and Safety Officer will maintain a current alphabetical file of complete material safety data sheets for each hazardous substance brought to, stored, or used at the work site. The file must be easily accessible to all employees. Subcontractors and visitors to the work place will be informed of the existence and location of this file. Workers and visitors will be instructed on how to read and understand the information shown on the material safety data sheets. Subcontractors must inform the Site Health and Safety Officer about hazardous substances that they bring onsite and provide material safety data sheets.

4.3.4 Hazard Communication Training

Site workers and visitors will be informed of the Hazard Communication Program, their legal rights under the program, the location of the chemical inventory, and the location of the material safety data sheets file. Prior to site work or potential exposure to hazardous substances, the Site Health and Safety Officer will describe hazardous substances routinely used and provide information about:

- Nature of potential chemical hazards
- Appropriate work practices
- Appropriate control programs
- Appropriate protective measures
- Methods to detect presence or release of hazardous substances
- Emergency procedures.

5. PERSONAL PROTECTIVE EQUIPMENT

This section describes the requirements, maintenance, and inspection of PPE.

5.1 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Based upon currently available information and the nature of the anticipated tasks, the level of protection selected for all the work tasks is Level D.

In the event that potential chemical hazards are identified, the level of protection may be upgraded appropriately to the potential hazard conditions by Site Health and Safety Officer. Only those personnel identified and qualified for hazardous waste work as defined in 29 CFR 1926.65 will be allowed to upgrade beyond Level D or provide support of hazardous material/substance contingency operations. Only the Site Health and Safety Officer, in conjunction with the Health and Safety Coordinator and Project Manager, will be allowed to approve PPE upgrade beyond Level D and site re-entry for the purpose of hazardous conditions assessment.

The following is a list of the Level D PPE components for the minimum level of protection authorized for use during this task order:

- Coveralls or appropriate work clothes.
- Steel-toe, steel-shank safety boots/shoes.
- Hard hats (if overhead hazards are present).
- Chemical resistant gloves (neoprene or nitrile) as appropriate to prevent contact during sample collection activities.
- Leather or cloth work gloves (as needed).
- Safety glasses with side shields and face shield (as needed) or impact-resistant chemical goggles; safety glasses, goggles, and face shields will meet American National Standards Institute requirements for impact resistance and safety.
- Hearing protectors (as needed). Note: hearing protection must be available and must be worn whenever noise levels exceed 85 dBA (noise level at which a shouted conversation cannot be understood at a 1-foot distance).
- High visibility reflective vests (traffic and/or heavy equipment operations).

5.2 MAINTENANCE AND IN-USE INSPECTION OF PERSONAL PROTECTIVE EQUIPMENT

Effective use of protective equipment requires that the equipment be properly used, maintained, and inspected periodically during the day. Site-specific issues and standard procedures will be reiterated during pre-entry training. Gloves and body coverings will be regularly inspected and replaced promptly if torn. Disposable coveralls will be replaced daily at a minimum. Reusable gloves will be decontaminated whenever exiting the area.

6. EMERGENCY RESPONSE AND REACTION TO SITE CONTINGENCIES

This section describes emergency procedures for the site.

6.1 EMERGENCY RECOGNITION

Prior to work startup, personnel must be familiar with emergency condition identification, notification, and response procedures.

The emergency telephone numbers for local emergency response and reporting organizations are provided in Table 5. Figure 2 presents directions to the nearest hospital.

TABLE 5 EMERGENCY TELEPHONE NUMBERS

Organization	Phone Number
Emergency – Ambulance	911 or (918) 367-5567
Bristow Fire Department	911 or (918) 367-3415
Bristow Police Department	911 or (918) 367-2251
Bristow Public Works (Water Department)	(918) 367-2454 (918) 367-2252 (After hours)
Poison Control Center	(800) 222-1222
Hospital – Bristow Medical Center 700 W. 7th Ave. Bristow, OK 74010	(918) 367-4424 (Emergency Room) (918) 367-2215 (Main)

Directions to Hospital:
From the site:
1. Depart W. 221st Street South (Refinery Road) towards McDonald Dr. 0.7 mi
2. Turn left onto OK-16 E / OK-48 S / OK-66 S 0.2 mi
3. Straight onto OK-16 E / OK-48 S / OK-66 S 0.5 mi
4. Turn right on W. 7th Street 0.5 mi
5. Straight on W. 7th Street 161 ft
6. Arrive at Bristow Medical Center

Name	Position	Work Phone	Cell Phone
EA Project Personnel			
To be determined	Site Safety Health Officer	---	---
To be determined	Site Manager	---	---
Tim Startz	Program Manager	(972) 315-3922	(214) 616-7027
Pete Garger	Program Health and Safety Officer	(410) 527-2425	(410) 790-6338
Teresa McMillan	Project Manager	(505) 224-9013	(505) 259-6779
Luis Vega	Alternate Project Manager	(972) 459-5040	(214) 280-9031
Brian Yost	Office Health and Safety Coordinator	(972) 315-3922	(214) 906-0253
EPA Project Personnel			
Katrina Higgins-Coltrain	EPA TOM/RPM	(214) 665-8143	---
Thomas Kady	EPA ERT WAM	(732) 906-6172	---
ODEQ Project Personnel			
Todd Downham	ODEQ RPM	(405) 702-5136	---

The Site Manager/Site Health and Safety Officer will rehearse/review emergency procedures and/or applicable site contingencies initially during site orientation and as part of the ongoing

site safety program with EA and subcontractor personnel. Offsite emergency personnel will ultimately handle onsite emergencies. Initial response and first aid treatment, however, will be provided onsite.

Person(s) identifying an accident, injury, emergency condition, or a scenario requiring implementation of a response in support of this HSP will immediately take actions to report the situation to the Site Manager/Site Health and Safety Officer. Notification may take place by runner, hand-held radio, or cell phone. The Site Manager/Site Health and Safety Officer will initiate the required response based upon the type of incident, following the procedures contained in this HSP. Chain-of-command and sign-in sheets for personnel on the site will be established at the beginning of each work day to ensure personnel are accounted for and who will take control should the Site Manager/Site Health and Safety Officer become injured.

The following items constitute those site conditions requiring an emergency response or contingency action in accordance with this HSP:

- Fire/explosion
- Heavy equipment accident
- Natural disaster
- Medical emergency
- Discovery of unanticipated hazards (e.g., unmarked utility lines, heavily contaminated material).

Follow-on operations to evaluate and control the source of fire, explosion, and hazardous material incidents will occur only after discussion with the Project Manager, Site Manager/Site Health and Safety Officer, and the Health and Safety Coordinator along with the EPA personnel.

The Site Manager/Site Health and Safety Officer will act as the emergency coordinator at the site to coordinate onsite activities and contingencies with outside response organizations. If the Site Manager/Site Health and Safety Officer is unable to act as the emergency coordinator, then the authority to take action will be transferred to the other designee, as determined by the Health and Safety Coordinator.

6.2 PRE-EMERGENCY PLANNING

The Site Health and Safety Officer will contact the applicable local emergency response organizations contained in Table 5 prior to beginning of the project to identify the emergency response requirements and commitments required to support this task order. The Project Manager, or designee, will contact those local authorities potentially required to respond in the event of an onsite emergency incident or contingency. This notification will inform each applicable agency of the starting date, anticipated scope of work, and existence of the HSP. A copy of the HSP will be made available to each emergency response agency upon request to the Project Manager. Emergency activities will be coordinated (as applicable) with the local emergency planning committee, as required in accordance with Superfund Amendments and Reauthorization Act Title III requirements.

6.3 OPERATIONS SHUTDOWN

The Site Health and Safety Officer may mandate operations shutdown. Conditions warranting work stoppage will include (but are not limited to):

- Fire
- Explosion
- Uncovering potentially dangerous buried hazardous materials
- Conditions immediately dangerous to life and health or the environment
- Potential for electrical storms
- Treacherous weather-related conditions
- Limited visibility
- Upgrading of site security threat conditions.

6.4 PROCEDURES FOR HANDLING EMERGENCY INCIDENTS

In the event of an emergency, the information available at that time must be properly evaluated and the appropriate steps taken to implement the emergency response plan. The Site Health and Safety Officer will assume command of the situation. He/she will alert the emergency management system per Table 1, and evacuate personnel to the pre-designated evacuation location. The Site Health and Safety Officer will make required notifications to include, but not be limited to, the EA Project Manager, EA Health and Safety Coordinator, EPA Point-of-Contact, as defined in this HSP and Table 5, and the appropriate federal and state agencies, as applicable.

Site personnel will have the capability of notifying emergency responders directly from the site using the onsite cell phone.

The Project Manager will complete and submit to an EPA-appointed representative an accident/loss and incident report (Appendix D), within 24 hours. The following information will be provided when reporting an emergency:

- Name and location of person reporting
- Location of accident/incident
- Name and affiliation of injured party
- Description of injuries, fire, spill, or explosion
- Status of medical aid and/or other emergency control efforts
- Details of chemicals involved
- Summary of accident, including suspected cause and time it occurred
- Temporary control measures taken to minimize further risk.

This information is not to be released under any circumstances to parties other than those listed in this section and emergency response team members. Once emergency response agencies have been notified, the Project Manager and EPA Point-of-Contact will be immediately notified.

6.5 MEDICAL EMERGENCIES

Personnel should always be alert for signs and symptoms of illnesses related to chemical, physical, and onsite health hazards. Severe injuries resulting from accidents must be recognized as emergencies and treated as such.

In a medical emergency, the Site Health and Safety Officer must sound the emergency alarm, upon which work must stop and personnel must move to the predesignated evacuation location. **If the emergency situation cannot be conveyed by word of mouth, cellular telephone, or two-way radio, a whistle or other horn will be sounded. Three short blasts, separated by a 2-second silence, will be used as the emergency signal.** Personnel currently trained in first aid will evaluate the nature of the injury, decontaminate the victim (if necessary), and initiate first aid assistance immediately and transport if appropriate. First aid will be administered only to limit further injury and stabilize the victim. The local Emergency Medical Services must be notified immediately if needed.

Although not anticipated, victims who are heavily contaminated with toxic or dangerous materials must be decontaminated before being transported from the site. Since no hazardous materials are anticipated, a formal decontamination station will not be available; however, there is an emergency eyewash station in each of the EA vehicles. Decontamination will consist of removal of contaminated coveralls/clothing, and wrapping the victim in a sheet or other cloth like material as necessary. No persons will re-enter the site of injury/illness until the cause of the injury or symptoms has been determined and controlled. At no time will personnel transport victims to emergency medical facilities unless the injury does not pose an immediate threat to life and transport to the emergency medical facility can be accomplished without the risk of further injury. Emergency Medical Services will be used to transport serious injuries offsite unless deemed otherwise by the Site Health and Safety Officer.

The Site Health and Safety Officer must complete a detailed report and submit it to the Project Manager within 24 hours of the following types of incidents:

- Job-related injuries and illnesses
- Accidents resulting in loss or damage to property
- Accidents involving vehicles and/or vessels, whether or not they result in damage to property or personnel
- Accidents in which there may have been no injury or property damage, but which have a high probability of recurring with at least a moderate risk to personnel or property
- Near-miss incidents that could have resulted in any of the conditions defined above.

An accident that results in a fatality or the hospitalization of three or more employees must be reported within 8 hours to the U.S. Department of Labor through the Project Manager and Program Health and Safety Officer. Subcontractors are responsible for their reporting to the U.S. Department of Labor.

In order to support onsite medical emergencies, first aid/emergency medical equipment will be available in the onsite company vehicle:

- Portable emergency eye wash
- A 20-pound multipurpose (ABC-rated) fire extinguisher
- An adequately stocked first aid kit
- Adequate supplies of potable water for decontamination, personal hygiene, and emergency use
- An emergency siren or horn
- Cell phone
- Copy of HSP.

6.6 FIRE/EXPLOSION EMERGENCIES

Fire and explosion must be immediately recognized as an emergency. The Site Health and Safety Officer must sound an emergency signal, and personnel must be decontaminated (if necessary) and evacuated to the pre-designated evacuation location. Only persons properly trained in fire suppression and other emergency response procedures will support control activities. Control activities will consist of the use of onsite portable fire extinguishers for limited fire suppression and employee evacuation. Upon sounding the emergency alarm, personnel will evacuate the hazard location and assemble at the designated site meeting area. Only the Site Health and Safety Officer, or those site personnel trained in the use of portable fire extinguishers, will attempt to suppress a site fire. Small, multi-purpose dry chemical extinguishers will be maintained in each EA vehicle onsite. Fires not able to be extinguished using onsite extinguishers will require the support of the local Fire Department. The Site Health and Safety Officer should take measures to reduce injury and illness by evacuating personnel from the hazard location as quickly as possible. The Site Health and Safety Officer must then notify the local Fire Department. The Site Health and Safety Officer will determine proper follow-up actions. Site personnel will not resume work during or after a fire/explosion incident until the Site Health and Safety Officer has directed that the incident is over and work may resume. During the incident, site personnel will remain outside the incident area and obey the instructions of the Site Health and Safety Officer.

6.7 EMERGENCY TELEPHONE NUMBERS

Communications will be by telephones located in the EA vehicle onsite and the field personnel will have access to this telephone to directly contact offsite emergency response organizations. Refer to Table 5 for a listing of emergency telephone numbers in Section 6.1.

6.8 CONTROL OF SITE PRODUCED AMBIENT NOISE LEVELS

In order to maintain ambient noise levels within acceptable standards, site activities will take place between 0700 and 1900 hours each workday. Equipment used onsite containing internal combustion engines will be required to have mufflers attenuating sound output 80 dBA at a distance of 50 feet from the operating equipment. Complaints by local inhabitants received by

the Site Health and Safety Officer will prompt sound level monitoring operations to ensure compliance with the standard.

7. SITE CONTROL AND WORK ZONES

The following work zones will be established during implementation of the field activities as a means of site control. Work zones will be established, if needed, in accordance with the following:

- **Exclusion Zone (EZ)**—This area has either known or potential contamination and has the highest potential for exposure to chemicals onsite. The outer boundary of the EZ is called the hotline. The hotline separates the area of known or potential contamination from the rest of the site. The hotline should initially be established by visually surveying the site for signs of contamination, providing sufficient space to protect personnel outside the zone, allowing an adequate area in which to conduct site operations, and for reducing the potential for contaminant migration. The hotline will be physically secured or clearly marked. During subsequent site operations, the boundary may be adjusted as more information becomes available. Persons who enter the EZ must wear the appropriate level of PPE for the degree and types of hazards present at the site.

- **Contamination Reduction Zone (CRZ)**—One access point to the EZ designated by the Site Health and Safety Officer.

  The purpose of the CRZ is to reduce the possibility that the Support Zone (SZ) will become contaminated or affected by the site hazards. Because of both distance and decontamination procedures, the degree of contamination in the CRZ generally will decrease as one moves from the hotline to the SZ.

  The CRZ will be established outside the areas of known or potential contamination. Contamination Reduction Corridors, which are access control points between the EZ and CRZ, should be established for both personnel and heavy equipment. These corridors should consist of an appropriate number of decontamination stations necessary to address the contaminants of the particular site (see National Institute of Occupational Safety and Health/OSHA/U.S. Coast Guard/U.S. Environmental Protection Agency *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985 for information on decontamination procedures and work zones).

- **Support Zone (SZ)**—Uncontaminated area and may include site vehicles.

  The SZ is the uncontaminated area where workers are unlikely to be exposed to hazardous substances or dangerous conditions. The SZ is the appropriate location for the equipment and supply center and other administrative or support functions that are necessary to keep site operations running efficiently.

Potentially contaminated clothing, equipment, and samples must remain outside the SZ until decontaminated. However, personnel located in the SZ must receive instruction in proper evacuation procedures in case of a hazardous substance emergency. The SZ should be upwind and as far from the EZ as practicable.

The level of PPE will depend upon the type of work performed and site monitoring data. Level D will be the minimum protection in the EZ. The CRZ will require a minimum Level D. No specific PPE requirements are needed in the SZ, as contaminated materials are prohibited from being stored in this area. Only authorized personnel will be permitted in the EZ and CRZ. Entering these zones will require donning the required PPE prior to entry. These zones will be established prior to beginning the field activities.

Exiting the EZ will require going through decontamination in the CRZ.

Safe work practices to be followed by site workers include:

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited in all the three zones at all times.
- Hands and face must be thoroughly washed upon leaving the work area.
- Personnel must not take prescription drugs unless specifically approved by a licensed physician who is familiar with the issues of worker exposure to hazardous materials.
- When respirators are required, facial hair that interferes with the face-to-face piece fit of the respirator will not be permitted.
- Work is allowed during daylight hours only.
- If dust is being visually generated in the EZ, the Site Health and Safety Officer will advise on procedures for misting or wetting the soil to prevent possible exposure from inhalation of soil contaminants.
- Possessing, using, purchasing, distributing, selling, or having controlled substances in your system during the workday, including meal or break periods onsite, is strictly prohibited.
- The use or possession of alcoholic beverages onsite is prohibited. Similarly, reporting to work or performing one's job assignments with excessive levels of alcohol in one's system will not be permitted.

8. REFERENCES

EA Engineering, Science, and Technology, Inc., PBC (EA). 2013. Corporate Safety and Health Program Manual. October.

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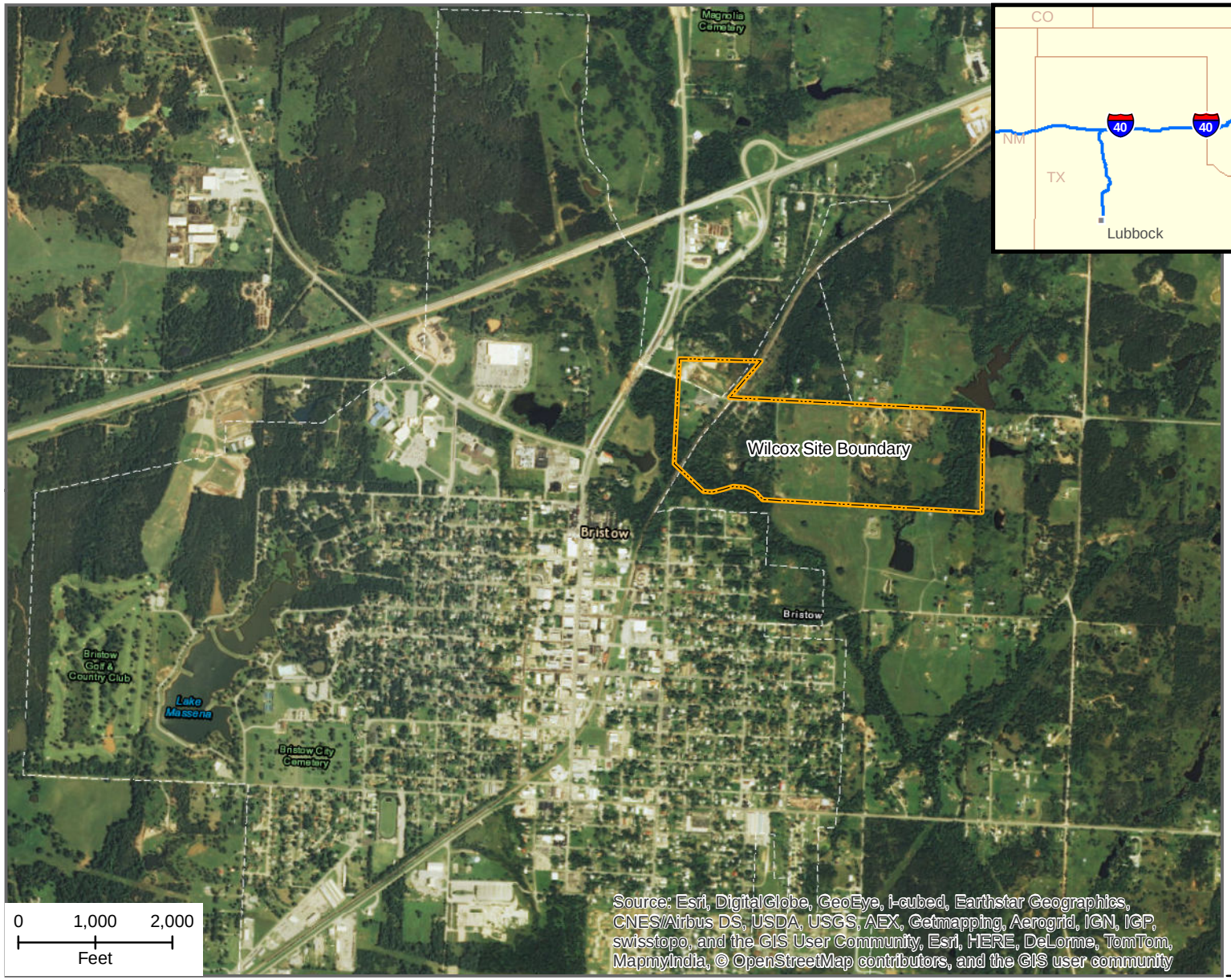
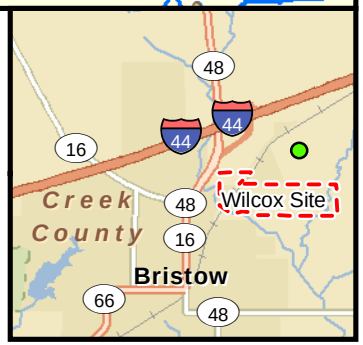
———. 2015. RAC II Fixed Rate Statement of Work (Revision 0) for Remedial Investigation and Feasibility Study Phase 2, Wilcox Oil Company Superfund Site, Bristow, Creek County, Oklahoma. 13 July.

Figures





Wilcox Oil Company
Bristow, Creek County, Oklahoma

Figure 1
Site Location Map

2010-12-08 r:\federal\epa\trac ii\0057-devils swamp lake rifs os\gis\mxds\figxx_sitelocа.mxd EA-Dallas jschwertz

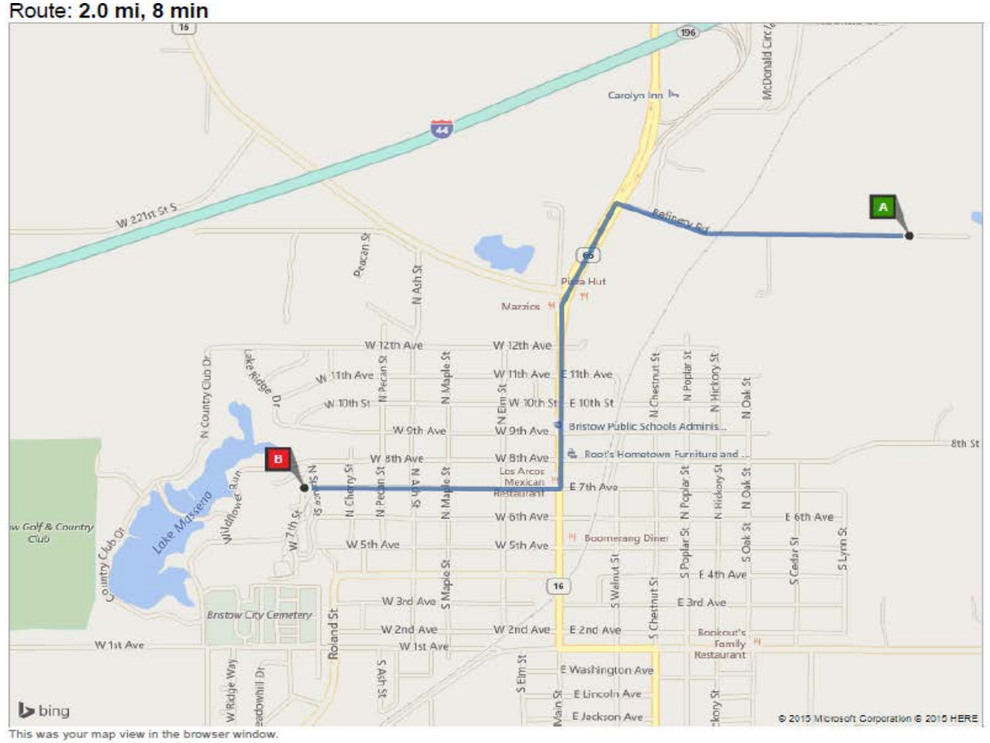
DIRECTIONS TO BRISTOW MEDICAL CENTER

A	**W 221st St S, Bristow, OK 74010**	**A–B: 2.0 mi** 8 min
	1. Depart **Refinery Rd** toward McDonald Dr	0.7 mi
	2. Turn **left** onto **OK-48 S / OK-66 S**	0.2 mi
	3. Keep **straight** onto **OK-16 E / OK-48 S / OK-66 S**	0.5 mi
	4. Turn **right** onto **W 7th St**	0.5 mi
	5. Keep **right** onto **road**	161 ft
B	6. Arrive at **Bristow Medical Center, OK** *The last intersection is W 7th St*	

SOURCE: MODIFIED FROM: Bing.com

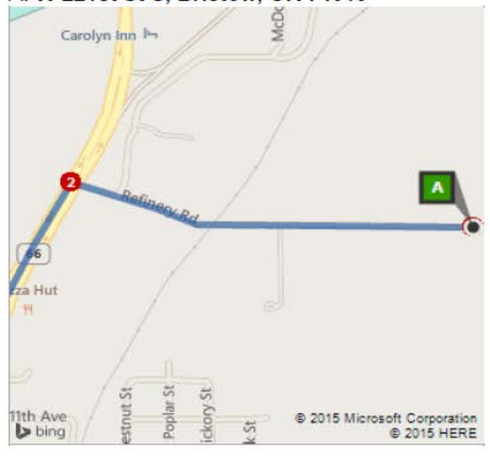
Note: This sheet must be posted on site

Route: **2.0 mi, 8 min**



This was your map view in the browser window.

A: **W 221st St S, Bristow, OK 74010**



B: **Bristow Medical Center, OK**

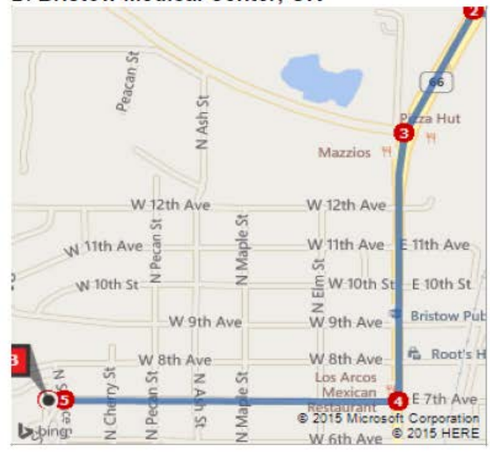


Figure 2: Hospital Route Map

Appendix A

Site Health and Safety Plan Review Record

APPENDIX A

SITE HEALTH AND SAFETY PLAN REVIEW RECORD

Site Name/Location: ____

I have read the Health and Safety Plan for this site and have been briefed on the nature, level, and degree of exposure likely as a result of participation in this project. I agree to conform to all the requirements of this Plan.

NAME	SIGNATURE	COMPANY	DATE

Appendix B

Daily Site Log

APPENDIX B

DAILY SITE LOG

Site Name:_____ Date: _____

Name (print)	Company	Time	
		In	Out

Comments:

_____

_____

_____

Appendix C

Daily Safety Meeting Form

APPENDIX C

DAILY SAFETY MEETING FORM

Date: _____ Time: _____Project No.: _____

Site Name/Location: _____

Site Activities Planned for Today: _____

_____

Safety Topics Discussed
Protective clothing and equipment:
Chemical hazards:
Physical hazards:
Environmental and biohazards:
Equipment hazards:
Decontamination procedures:
Other:
Review of emergency procedures and comments:

DAILY SAFETY MEETING FORM (CONTINUED)

Attendees	
Printed Name	**Signature**

Meeting Conducted by:

_____ _____

Name Title

_____

Signature

Appendix D

Accident/Loss and Incident Report

ACCIDENT/LOSS REPORT

THIS REPORT MUST BE COMPLETED BY THE INJURED EMPLOYEE OR SUPERVISOR AND FAXED TO EA CORPORATE HUMAN RESOURCES WITHIN 24 HOURS OF ANY ACCIDENT. THE FAX NUMBER IS **(410) 771-1780**.

NOTE WHENEVER AN EMPLOYEE IS SENT FOR MEDICAL TREATMENT FOR A WORK RELATED INJURY OR ILLNESS, PAGE 4 OF THIS REPORT MUST ACCOMPANY THAT INDIVIDUAL TO ENSURE THAT ALL INVOICES/BILLS/CORRESPONDENCE ARE SENT TO HUMAN RESOURCES FOR TIMELY RESPONSE.

a. DEMOGRAPHIC INFORMATION:

NAME OF INJURED EMPLOYEE:_____
HOME ADDRESS:_____
HOME PHONE:_____ DATE OF BIRTH:_____
AGE:_____ SEX: M F
MARITAL STATUS:_____ NAME OF SPOUSE (if applicable)_____
SOCIAL SECURITY NUMBER:_____ DATE OF HIRE:_____
NUMBER OF DEPENDENTS:_____
EMPLOYEES JOB TITLE:_____
DEPT. REGULARLY EMPLOYED:_____
WAS THE EMPLOYEE INJURED ON THE JOB: Y N
PRIMARY LANGUAGE OF THE EMPLOYEE: _____

b. ACCIDENT/INCIDENT INFORMATION:

DATE OF ACCIDENT:_____ TIME OF ACCIDENT:_____
REPORTED TO WHOM: _____ NAME OF SUPERVISOR_____
EXACT LOCATION WHERE ACCIDENT OCCURRED (**including street, city, state and County**):
EXPLAIN WHAT HAPPENED (include what the employee was doing at the time of the accident and how the accident occurred): _____
_____
_____
_____

DESCRIBE THE INJURY AND THE SPECIFIC PART OF THE BODY AFFECTED (i.e., laceration, right hand, third finger):
_____
_____

OBJECT OR SUBSTANCE THAT DIRECTLY INJURED EMPLOYEE:_____

NUMBER OF DAYS AND HOURS EMPLOYEE USUALLY WORKS PER WEEK:_____

IS THE EMPLOYEE EXPECTED TO LOSE AT LEAST ONE FULL DAY OF WORK?_____

DOES THE EMPLOYEE HAVE A PREVIOUS CLAIM? Y N if yes, STATUS Open Closed

WAS THE EMPLOYEE ASSIGNED TO RESTRICTED DUTY? _____

c. ACCIDENT INVESTIGATION INFORMATION

WAS SAFETY EQUIPMENT PROVIDED? Y N If yes, was it used? Y N

WAS AN UNSAFE ACT BEING FORMED ? Y N If yes, describe_____

WAS A MACHINE PART INVOLVED? Y N If yes, describe _____

WAS THE MACHINE PART DEFECTIVE? Y N If yes, in what way _____

WAS A 3RD PARTY RESPONSIBLE FOR THE ACCIDENT/INCIDENT? Y N

If yes, list Name, address and phone number_____

_____

WAS THE ACCIDENT/INCIDENT WITNESSED? Y N

If yes, list Name, address and phone number: _____

_____

d. PROVIDER INFORMATION

WAS FIRST AID GIVEN ON SITE? Y N

If yes, what type of medical treatment was given _____

PHYSICIAN INFORMATION (if medical attention was administered)

NAME:_____

_

ADDRESS (incl. City, state and zip):_____

PHONE:_____

HOSPITAL ADDRESS (incl. Name, address, city, state, zip code & phone)

_____

_____

_

WAS THE EMPLOYEE HOSPITALIZED? Y N If yes, on what date_____

WAS THE EMPLOYEE TREATED AS AN OUTPATIENT, RECEIVE EMERGENCY TREATMENT OR AMBULANCE SERVICE? _____

PLEASE ATTACH THE PHYSICIANS WRITTEN RETURN TO WORK SLIP

***NOTE* A PHYSICIANS RETURN TO WORK SLIP IS REQUIRED PRIOR TO ALLOWING THE WORKER TO RETURN TO WORK**

e. AUTOMOBILE ACCIDENT INFORMATION (complete if applicable)

AUTHORITY CONTACTED AND REPORT #_____
EA EMPLOYEE VEHICLE YEAR, MAKE AND MODEL_____
V.I.N._____ PLATE/TAG #_____
OWNER'S NAME AND ADDRESS:_____
DRIVER'S NAME AND ADDRESS: _____
RELATION TO INSURED:_____DRIVER'S LICENSE #_____
DESCRIBE DAMAGE TO YOUR PROPERTY:_____
DESCRIBE DAMAGE TO OTHER VEHICLE OR PROPERTY:_____
OTHER DRIVER'S NAME AND ADDRESS: _____
OTHER DRIVER'S PHONE:_____
OTHER DRIVER'S INSURANCE COMPANY AND PHONE:_____
LOCATION OF OTHER VEHICLE:_____
NAME, ADDRESS AND PHONE OF OTHER INJURED PARTIES:_____
WITNESSES

NAME:_____ PHONE:_____
ADDRESS:_____
STATEMENT:_____
SIGNATURE:
_____

NAME:_____ PHONE:_____
ADDRESS:_____
STATEMENT:_____
_____
SIGNATURE:
_____

f. ACKNOWLEDGEMENT

NAME OF SUPERVISOR:_____
DATE OF THIS REPORT: _____ REPORT PREPARED BY:_____

I have read this report and the contents as to how the accident/loss occurred is accurate to the best of my knowledge.

Signature: _____ Date: _____
Injured Employee

I am seeking medical treatment for a work related injury/illness.

Please forward all bills/invoices/correspondence to:

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

225 SCHILLING CIRCLE
SUITE 400
HUNT VALLEY, MD 21031

ATTENTION: MICHELE BAILEY
HUMAN RESOURCES

(410) 584-7000

INCIDENT REPORT

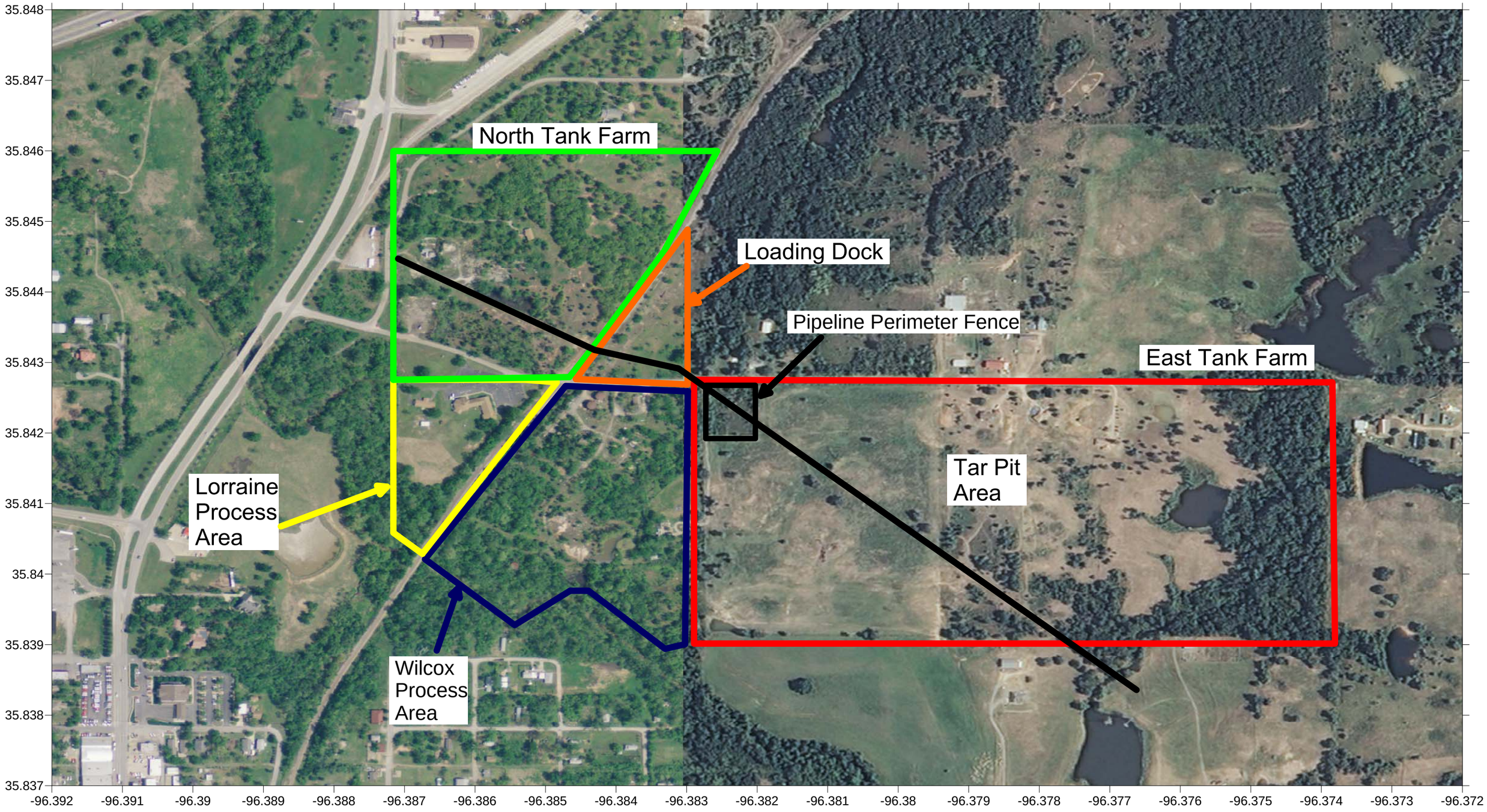
THIS REPORT IS TO BE COMPLETED WHEN A NEAR MISS OCCURS THAT COULD HAVE POTENTIALLY RESULTED IN SERIOUS PHYSICAL HARM. PLEASE FAX THIS FORM TO EA HUMAN RESOURCES DEPARTMENT AT **(410) 771-1780**.

EXPLAIN WHAT HAPPENED (include what the employee was doing at the time the near miss and how it occurred: _____

REPORT PREPARED BY: _____ DATE:_____

Appendix E

EPA ERT SERAS Figures



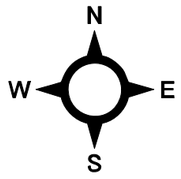
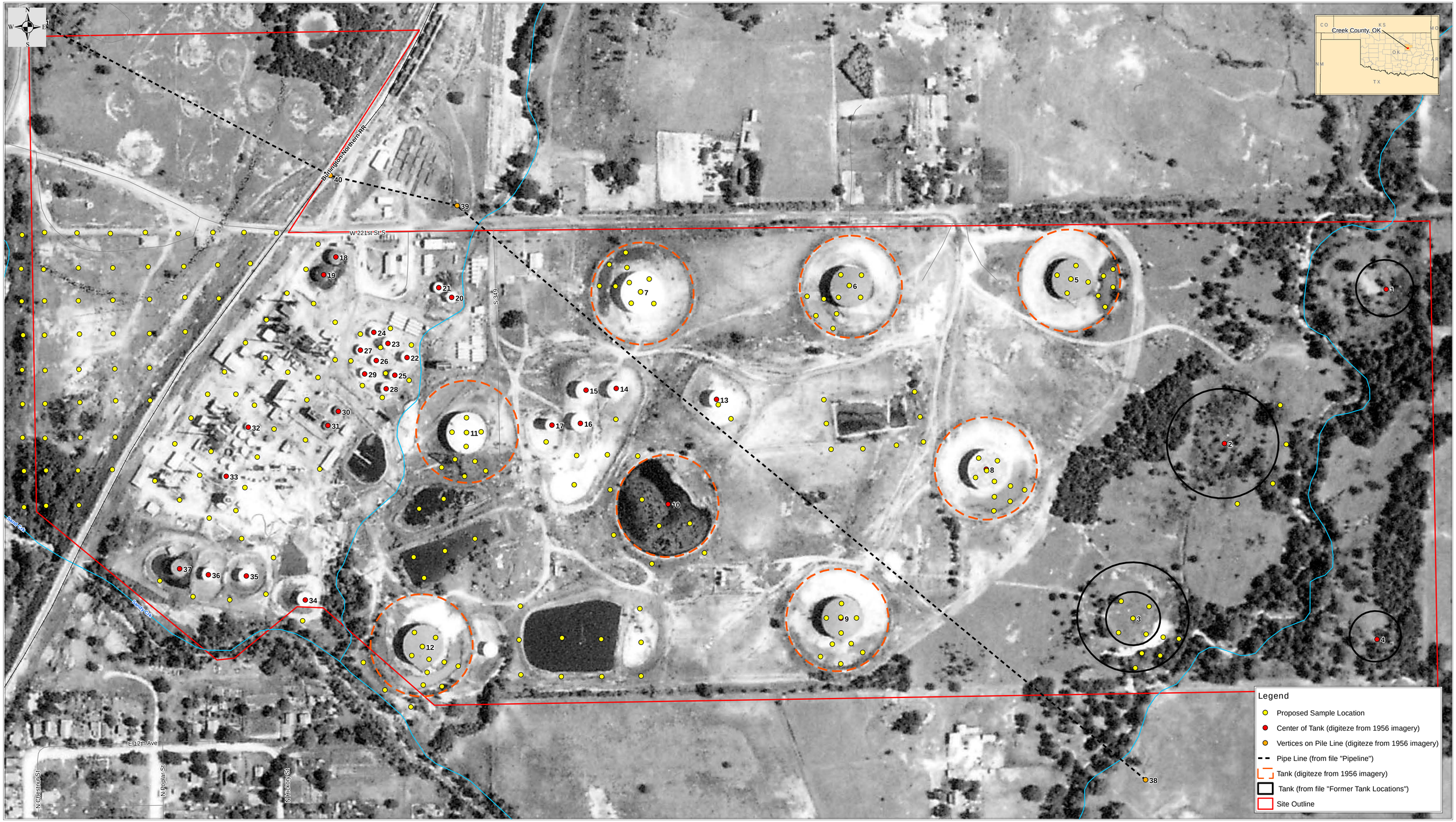


Figure 1
Overview of Wilcox and Lorraine Refineries Site

Coordinates are presented in Latitude/Longitude



base map created using ESRI World Imagery.

Map Creation Date: 17 July 2015

Coordinate system: Oklahoma State Plane North
FIPS: 3501
Datum: NAD83
Units: Feet

0 125 250 Feet

D R A F T

Data: g:\arcviewprojects\SERA01\00-277
MXD file: g:\arcinfoprojects\SERA01\SER00277_Wilcox_Refinery\277_Temp_Site_Features_Locations_Dsize_fX.mxd

U.S. EPA Environmental Response Team
Scientific Engineering Response and Analytical Services
EP-W-09-031
W.A.# 0-277

Figure 2
Site Features Locations
Wilcox Refinery Direct-Sensing Investigation
Bristow, Oklahoma